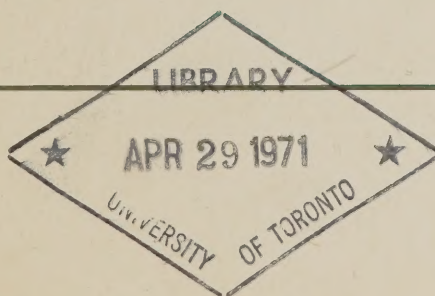




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# HISTORY OF THE RIDEAU WATERWAY



ONTARIO

DEPARTMENT OF ENERGY AND RESOURCES MANAGEMENT  
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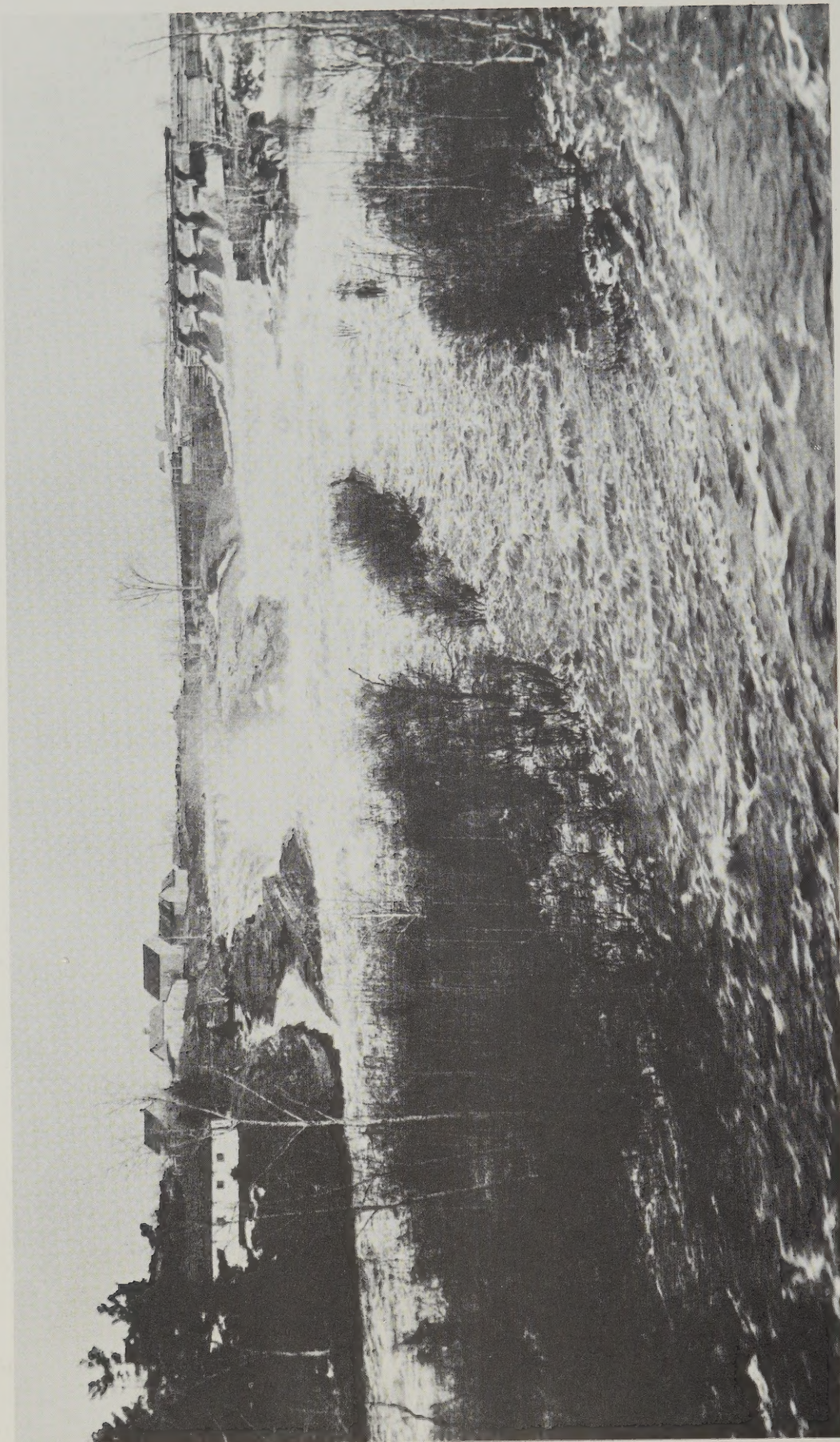




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The Hogs Back Falls before the turn of the century. (Public Archives of Canada).



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**Department of Energy and Resources Management**

HON. GEORGE A. KERR Q.C., Minister

J. C. THATCHER, Deputy Minister

A. S. L. BARNES, Director, Conservation Authorities Branch

# HISTORY OF THE RIDEAU WATERWAY



TORONTO  
1970





CONSERVATION AUTHORITIES BRANCH

TECHNICAL STAFF

Director:

A.S.L. BARNES, B.Sc.F., R.P.F.

Chief Engineer:

J.W. MURRAY, B.A.Sc., P.Eng.

Hydrometeorologist:

D.N. McMULLEN, B.A., F.R.Met.S.

Executive Assistant:

F.G. JACKSON, B.Sc.F., R.P.F.

Forestry and Land Use Section Head:

P.M.R. HARVIE, B.Sc.F., R.P.F.

History Section Head:

M.B. ADDINALL, B.A.

Recreation Section Head:

G.D. BOGGS, B.A., M.A.

Biology Section Head:

K.M. MAYALL, B.Sc.F., M.A., R.P.F.

Conservation Planning Section Head:

V.W. RUDIK, B.A.

Field Services Supervisor:

A.D. LATORNELL, B.S.A., M.S., P. Ag.

Authority Resources Managers:

D. J. MURRAY, B.Sc.F.,  
Rideau Valley Conservation Authority.

W. D. ADLAM, B.Sc.F., R.P.F.,  
Cataraqui Region Conservation Authority.





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## Chapter 1

### THE BEGINNINGS

After 1783, there was no doubt about the value of a water communication between the Ottawa and the St. Lawrence, with the southernmost point in the vicinity of Cataragui. Long before Sir Frederick Haldimand, the Governor of Canada in 1783, was given a matter of months to decide where he would concentrate his settlements of loyalist refugees from the newly created United States, it was known that a canoe route of sorts existed between the two great rivers. Frontenac, almost one and a quarter centuries before, had in fact established his fort in the same area so that he "could see the Indians pass by who crossed the lake to go into the river of Tanagoate [the Trent] and also those who seek rivers which are below the mouth of the lake to get to the lands in the North". But apart from the occasional fur trader --and only one, John Dumoulin, appears to have concentrated his efforts in the Cataragui region by the 1780s--only the Indians were familiar with these north-south water routes and the territories through which they flowed, and which served them as hunting grounds.

When the loyalists' exodus from the United States began, Haldimand opposed the British Government's decision to establish settlements in the Eastern Townships area of today's Quebec, both because "the [French] Canadians will encrease (sic) much in population and in a few years, more Lands will be wanted for them," and because "it seems good Policy that the Frontiers [between the States and Canada] should be settled by People professing different Religions, speaking a different Language and accustomed to other Laws and Government," thereby avoiding "great mutual mischief." Instead he saw "great advantage" for "making useful and happy Settlements for the Loyalists" in "The Land between the River St. Lawrence and that of the Outawa [sic] River towards Cataragui." Haldimand, plainly confident of the superiority of his plan, and with little time to lose if it was to be made effective, did not even wait for official confirmation of the change which was, in fact, not made until April, 1784, when the British Secretary of State wrote to him that "His Majesty approves of the Plan you have proposed for settling some of the Loyalists at Cataragui and Places adjacent, and is satisfied with the reasons you have given."

Throughout 1783, survey parties were sent out from military headquarters at Quebec, and from Montreal, to explore the territories and connecting waterways. One of these, led by Lieutenant French, an engineer of Jessup's Corps, is of particular concern here, as it was charged with examining the Ottawa "to the Rideau, and from the Mouth of the River to its Source, from thence to the River Gananoncoui, and down the same to its Fall into the St. Lawrence about five Leagues North-East from Cataragui." The daily observations on the Rideau Section of French's party consisting of "seven men of the Provincials, two Canadians and an Indian as Guide with two Bark Canoes," have been examined in some detail in the 1969 *Rideau Conservation Authority Report*. In summary, French, who spent most of October, 1783, on the whole project, found that the lands were "good on both sides of the River and may be all cultivated, except a few Swamps, and stony Ridges," that there was far more potential ploughland "of the best Soil" than meadow lands, and that the timber--"Evergreens," beech, maple, birch and hickory for the most part--was generally "very Tall and Straight." He was far less impressed with what he found on his way down the Gananoque. "I did not discover as much Good land conveniently situated as would serve one Farmer," he reported. What is important is that the river, in French's opinion, was served by "not many Streams

of Water, "was swampy in parts, and was sometimes "very Crooked and Rapid." It contained a number of falls which would make good sites for mills but which by the same token would not make for easy navigation. He also observed that the carrying place between the Rideau and Gananoque systems was a mile and a quarter.

Yet French had proven that a connecting water route existed. Also, more difficult obstacles than he had encountered were already being overcome by engineers in Britain and the United States. More than two decades before, Brindley in Britain had introduced revolutionary techniques of building locks and digging minor channels so that barges could be navigated around natural obstacles in river systems, and had succeeded in creating an artificial canal that linked Manchester and Worsley in a part of Britain's rapidly growing industrial belt of Lancashire. That was only the first of several extraordinary (for those days) canal projects that were completed in the same area by 1790. Britain was then possessed with a canal-building frenzy apparent to native and visitor alike. Benjamin Franklin, visiting Britain in 1772, noted what he thought to be the basis of the British success in building canals. They "seldom or never use a River where it can be avoided.... Rivers are ungovernable things whereas Canals are quiet and always manageable." Even before the Revolution, a number of canals were constructed in America with this advice in mind on the Potomac, the Susquehanna and the Delaware, and on other lesser rivers. After the British had left, a great deal of "money and ingenuity," as the American historian J. C. Furnas has written, were put into such engineering feats as the one which attempted to tame the Schuylkill in Pennsylvania with 34 dams and 29 locks over 100 miles. American canal builders were soon caught up in their own boom and in pioneering new methods on into the turn of the century. In Canada itself, some minor canal-building had been attempted by the North West Company at Sault Ste. Marie, and in the Soulages area of the St. Lawrence. During the American Revolution four minor canals were dug to enable bateaux to get around the Cascades in the area of the later Beauharnois Canal, the last being completed in the same year, 1783, that French made his report on the Rideau and the Gananoque.

The wealth of information being made available, and the enthusiasm being engendered, by canal-building mania during the last two decades of the eighteenth century undoubtedly aided in consideration being given to cutting a canal along the line of the Rideau. Such a scheme would obviously have fitted in perfectly with Haldimand's plan of settlement. The practical drawback to it was that the great natural commercial waterway of North America was the St. Lawrence River which, properly managed, could be made to draw American wealth through, and therefore into, Canada. It was along this river and the Lake Ontario part of its system that the loyalists and other newcomers chose chiefly to settle. The back country remained sparsely populated and, during the period of friendly relations and amicable trading that followed the establishment of the republic to the south, there was less justification for an expensive canal project that might never pay its way. Nevertheless there is some evidence to suppose that French's report was dusted off at least once in the decade that followed its writing, and that serious consideration was given to cutting the canal as a military undertaking. For the civil authorities of the newly created Province of Upper Canada in the 1790s and after, the more pressing problem was the establishment of the community itself, and when, in September, 1793, the surveyor, William Fortune, was given instructions for laying out six townships in the Eastern District, it was almost as an afterthought that he was told to "notice as much as the general Scope of your Survey will admit of the Course of the West Branch of the Rideau [sic]."



Although it was by no means the sole consideration, the War of 1812 served as a catalyst. Several generations of historians have suggested that, more specifically, it was the difficulties of transporting men and supplies to defend the western part of the province, and intelligence gained from American officers that they did have a plan to cut the St. Lawrence communication, that forced the British military command in the war's aftermath, to realize that a more defensible line of communication by way of the Rideau would have to be developed. Reports and letters of the time show a far more complex story.

In May, 1812, Sir George Prevost, the Commander of the military forces in Canada, wrote at the request of the British Cabinet "a report upon the military position of the North American Provinces," in which he clearly stated that:

Quebec is the only permanent Fortress in the Canadas:- It is the Key to the whole and must be maintained--To the final defence of this position, every other Military operation ought to become subservient, and the retreat of the Troops upon Quebec must be the primary Consideration ....

Quebec, "defective" though it was from a defensive standpoint, was "the only Post" that could be considered "as tenable for a moment." Prevost thought that Montreal, "the principal commercial City in the Canadas," could not fail to be the first target of an American attack which, if sustained, would breach the thin British defensive lines and make the St. Lawrence an American river. Kingston had, if anything, an even gloomier prospect. Situated as it was at the head of the St. Lawrence navigation, "contiguous to a very flourishing Settlement on the American Frontier," and with American posts "in the vicinity of Kingston, not only opposite, but both above and below with good Harbours, which are open to the resources of a very populous Country," it could expect sudden attack which, "if successful, would cut off the communication between the Upper and Lower Province, and deprive us of our Naval resources." At the beginning of any hostilities it would be "indispensably necessary," if there was to be any possibility of preserving "a Communication between the Lower and the Upper Province," that "some strong Post... to secure the Navigation of the St. Lawrence above the Rapids," be established. Significant, too, was his suggestion that while the Upper Canadian militia "is calculated at 11,000 Men," it "might not be prudent to Arm more than 4,000." Not only is there the obvious inference that arms might fall into the hands of the American invaders, and that some of the first and second generation Canadians might even be influenced to join up with the Americans, but also, there is a consideration concerning the problem of supplies. The fewer armed troops there were, the less supplies they would need.

There is much more in Prevost's report, mostly of a military nature, that is not of concern here, but any reading of it shows without doubt that the military high command had an extremely developed awareness of the meaning of the St. Lawrence and its vulnerability, not just after the fighting had ended, but even before it had begun.

Prevost's observations, as events happened, proved to have been unnecessarily pessimistic. A series of American armies failed to penetrate Canada's defensive lines in any significant way, and in the next year, 1813, after strategic successes at Detroit, Niagara, Chrysler's Farm and Chateauguay as examples, Prevost wrote to London that he had "disappointed the expectation of the American Government of finding Upper Canada an easy Conquest."

For a while, Prevost was not averse to piece-meal and daring efforts in keeping open his supply route. In 1813, "in order to ensure the safe arrival of ... essential Articles [and] ... to secure from interruption my line of communication with Upper Canada," he sent several detachments of militia under Major A. McDonnell, "to dislodge the Enemy from his position at Ogdensburg." This was "carried into execution in the most spirited manner." By the next year, when it seemed that the war, far from being over so quickly might drag on in desultory fashion for years, Prevost instructed McDonnell's second in command, George McDonnell, (both now Lieutenant-Colonels) to improve the Rapids and roads from Cornwall to Prescott and beyond and "to explore the Rideau communication" McDonnell, who knew the eastern part of the province well, later stated in a private letter of May 4, 1815, to the Military Secretary in Quebec, that he himself had suggested this project to Prevost.

McDonnell's report, made in mid-December, 1814, was well received by Prevost, although the latter, with his usual caution, stated that he was "fully aware of the difficulties which would present themselves on its course" and, felt apprehensive that Lieutenant-Colonel McDonnell has been disposed to diminish them." Writing from military headquarters at Quebec, to his subordinate, Lieutenant-General Sir Gordon Drummond at Kingston, on December 29, 1814, Prevost was nevertheless very definite in his opinion that the Rideau project might "become of vital importance to Upper Canada," and he gave instructions that:

In the event of your entertaining apprehensions of the Enemy's interrupting the existing line of Communication from Montreal to Kingston, you will lose no time in giving effect to as much of Lt. Col. McDonnell's project as you shall consider practicable for the purpose of establishing a second route of transport by the Rideau.

Drummond was further informed that he should obtain more advice--"should [he] deem such necessary"--prior to "suggesting the most advantageous mode of proceeding in the undertaking." He had in fact seen McDonnell's sketches and plans before Prevost had, and in Sir George Beckwith's words, "seemed sanguine as to the Practicability of the Project" and gave his formal support in early January, 1815, writing that he would endeavour to "obtain every further information in my power." Later, as a counterbalance to McDonnell's arguments, he submitted the opinions of several of his officers at Kingston who thought that the scheme, while feasible, would be extremely costly.

In the meantime, the sense of urgency was dissipated by changes in the diplomatic situation. The military initiative, in the short-term at least, had passed from the Americans and, towards the end of February, a treaty of peace was signed in Washington. Prevost soon left, under something of a cloud, because of his conduct in combined military and naval operations in the Plattsburg area, and Drummond became administrator in his place. There was, however, no thought of simply abandoning the Rideau project. In May, Captain James Yeo, who throughout the fighting had been a naval Commodore and "Commander-in-Chief on the Lakes," reported to the Lords of the Admiralty that it was "the perverse stupidity of the Enemy [and] the Impolicy of their plans," as well as the "fatal, and... mistaken confidence they placed in the attachment of the Canadians to their cause," that had prevented the Americans from taking Canada. As a military man he believed that the Americans had learned from their mistakes and would make another attempt much better equipped in every way to see it through. In that event, "the preservation of Canada by means of a Naval Force on the Lakes" would be "an endless, if not a futile undertaking." The war-time "insufficiency of Transport on the River St. Lawrence," because of exposure "to the fire of the Enemy's



Riffle [sic], Men from its Banks," would be in part responsible for this state of affairs. "Independent of this, should the Enemy cross over . . . and take a strong position between Montreal and Kingston," there was no question in Yeo's mind that "our Fleet and Army in the Upper Province would be perfectly useless, cut off from their supplies; and liable to capture or defeat."

There was one way out, and Yeo did not claim the idea as his own but simply supported it for its merit. That was to make Kingston "the strong Frontier Town of the Upper Province," and "open a water communication between that Place and Montreal by the River du Rideau." The estimate of the previous year, based on McDonnell's survey, was twenty to twenty-five thousand pounds (\$60,000 to \$75,000), but as Yeo stated without equivocation, "should it amount to three or four times that Sum, it would be trifling, when put in competition with the security of the supplies, and the advantages it would possess over the River St. Lawrence."

Only one ranking officer, Lieutenant-Colonel Nicolls, who commanded the Corps of Royal Engineers in Canada, appears to have been less than enthusiastic about the scheme in the first part of 1815. He believed that "measures" (financial by every indication) "are inadequate at present," an opinion that Prevost, before leaving Canada in April, was not inclined to dispute. Nevertheless, with influential persons in government in London, maintaining, as Yeo did, that financing was a detail that could be worked out in turn, the Rideau project rapidly reached the stage of serious planning. In October, Drummond received instructions from London to obtain "estimates of expense of the Lachine Canal, and of the Ottawa and Rideau being made navigable." The more leisurely pace of peace-time procedures being once again the norm, it was not until the winter was over that Nicolls, charged with the responsibility of carrying out this second feasibility study, selected for the task from among his regular officers of the Royal Engineers in April, 1816, a young Lieutenant, Joshua Jebb.

Even before this date the project had been broadened in London to take on some of the features of the original Haldimand plan of more than three decades earlier. By an indeterminate (as it later transpired) arrangement with the Executive Council of Upper Canada, plans were made for "certain Townships on the Rideau [to be] put at the disposal of the Commander of His Majesty's Forces . . . for the purpose of enabling him to carry into effect the Commands of his Sovereign by locating settlers of a particular description upon the lands so situated." At first, the instigators of the plan thought of displacing settlers and others who had legal titles to lands situated in exciting townships along the Rideau, recompensing them with lands elsewhere, and turning over the lands fronting the river to the war veterans, ex-soldiers and their families--the "settlers of a particular description"--who would then perform the functions of soldiers/farmers much as the disbanded legions had done on the frontiers of the Roman Empire centuries before. Drummond broached the subject with Francis Gore, the Lieutenant-Governor of Upper Canada, who in turn discussed it with members of his Council and then, more obviously aware of local conditions and conscious of the social and legal niceties involved than were those who had conceived the scheme, he wrote to Drummond in December, 1815, that:

I fear that any attempt to engage the Proprietors in the Rideau Townships to exchange for other Lands, will be fruitless:- Every aid, however, in my power, will be afforded, if the agents can induce a willing concurrence; but I should not feel myself justified to make the proposition as an Act of Government.

By July, 1816, it was formally decided that the Rideau townships in question would be confined to those to be based on Perth, and the Tay River rather than on the Rideau itself. The story of the transformation of these territories from wilderness to flourishing settlements within the next few years has been told in the 1969 *Rideau Valley Conservation Report* and will not therefore be repeated here. What is to the point is that, despite complications and drawbacks, the administration continued to insist that the Perth settlements were designed for a specific purpose. In January, 1817, for instance, the new Governor-General, Sir John Sherbrooke, wrote to Gore that if any doubts existed about the confirmation of settlement grants, "it may require the interposition of a higher authority, than that of either the Lieut. Governor of Upper Canada, or the Military Commander in these Provinces, to regulate what shall be done," and that there could be no question of going "upon Crown Reserves distant from the Rideau," as this "would defeat the intentions of His Majestys [sic] Government, respecting the communication from the Ottawa to Lake Ontario."

It is therefore plain that Lieutenant Jebb's journey was intended to be a confirmatory rather than an exploratory undertaking, concerned with the details of how to make the Rideau an adequate water route rather than with determining whether it was to be done at all. Senior government officials, generals and colonels, then as now were not in the habit of explaining to a young lieutenant the whys and wherefores of their orders, but one senses throughout Jebb's reports, written in June and July of 1816, that he was well aware that his findings were expected to be constructive, and he was careful to point out that he did not include "anything which on the spot I did not believe to be perfectly practicable," and that a particular "matter will probably become the object of future discussion engaging the opinions of others more competent to decide than I am."

Young though he was, Jebb was not inexperienced. He had come to Canada three years previously, in 1813, had participated in a number of military construction projects and had more or less taken charge of them, and had attracted notice for his versatility and knowledge of the latest techniques of his trade. He was nevertheless a modest man who was in the habit of prefacing his reports with such remarks as "having but little experience in works of this nature, I must request your indulgence towards any suggestions I may have made." Having received his orders to explore "the water communications of the Rideau River" in April, before the ice was gone from the water and the snow from the woods, he appears to have left immediately for the junction of the Rideau with the Ottawa, and to have commenced his planning from there.

In a month's time Jebb had already drawn up a preliminary report and had come to the conclusion that the best navigation was by way of Irish Creek which left the Rideau before the river's turn towards the rapids leading into Smith's Falls. According to this plan, the rapids to be overcome would be between the mouth of the Rideau and Long Island, a distance of some 14 miles, and as these were for the most part not significant ones the "principal Difficulty," as Jebb said, "arises from the great disproportion between the breadth and depth of the river the one averaging about 100 yards and the other 2 feet in dry seasons, I am informed much lower." The rapids aside, he considered "the rest of the river is perfectly navigable for any description of depth." Then as later, the suggestion that the route be taken by way of Irish Creek was unusual and Jebb, having travelled both alternatives, explained his preference on the grounds that the "distance is much less, the interruptions by water not so frequent, and the route lies through a more fertile and much better line of country and numerous other advantages might be adduced."



In June, he forwarded two other reports to Nicolls, who was about to leave Canada, the one dealing with the problem of making passable the 30-foot fall of the Rideau into the Ottawa, and the other with the continuation to Long Island. So far as the first was concerned, he thought it "evident that many Plans may be resorted to," but to "render the water communication perfect," he considered a canal and locks essential and included an alternative plan to cut "a Ramp ... with a slope of one Fourth," on which there would be "small Trucks which might be worked by means of a Windlass or any Mechanical Instrument of that Nature," and which in turn would facilitate the embarking of supplies in "boats constructed so as to meet the difficulties attending the navigation of the Rideau waters and differing in some respects from those in general use." Then, once again giving the lie to those who in later times believed that the Rideau Canal was always conceived as purely a military project, he excused the "considerable expense" of "cutting a canal through solid Rock" on the grounds that it would further "the ultimate good as affecting the comfort and convenience of the population inhabiting the fine tract of Land bordering the Rideau." Furthermore, it would "greatly enhance the Value of property to individuals settled there by Government, [and] be a lasting benefit to the Infant Colony as affording them a ready means of conveyance for all kinds of produce," and would generally produce "good effects [which] cannot fail of being Ultimately felt by the country. "

To Long Island there were, as Jebb had said previously, few difficulties but nevertheless expenses which he was again afraid "might appear exorbitant," but which would be to the good in the long run because "the Idea which has hitherto prevailed that this Space cannot be rendered navigable for bateaux is quite erroneous." Once more "various methods" came to mind, two of them seeming to him "most efficacious, and feasible," the one consisting of locks and wing dams to contract the channel, and the alternative being "a speculative Idea of my own" in which wing dams only would be used to increase the depth and current, and which also necessitated "retaining a head of water which will be of essential service in dry seasons." The "speculative Idea" he estimated at £3,109 (approximately \$14,000) and the more orthodox method of constructing three dams to the foot of the Long Island rapids at £5,724 (approximately \$25,000). Despite the advantages of locks, Jebb was, strangely enough, inclined to oppose them because "inconvenience must be sustained in keeping up an establishment in each for working them."

By mid-July, Jebb had reached sufficient conclusions concerning the whole route to communicate them from Kingston to the new commanding officer of the Royal Engineers in Canada, Lieutenant-Colonel Durnford, who was to be once again at this post when the works started in earnest under By a decade later. Jebb, now committed to the Irish Creek route, spent much of his report emphasizing its merits although he was not oblivious to the alternative and was plainly torn between the purely military aspects of the total plan and the longer term ones of development.

From Long Island for 20 miles southwards he found the channel "of sufficient depth to allow Boats of any size to navigate." Beyond that point the partially overflowed banks gave way to "land [which] is excellent, said to be the finest tract in the Country" by those who cultivated it, and he thought that the shallower channel to "Mericks Mill" (Merrickville) "may be rendered navigable either by excavating ... or by contracting so as to afford a depth of water" along the lines of his earlier "speculative Idea" of using wing dams. From Merrick's sawmill, where resource materials were also to be had in abundance, to Irish Creek, for a distance of seven miles, there was "dead water, deep and perfectly navigable." Leaving the Rideau

he sounded the Creek at intervals and found that it averaged five to ten feet in depth and had adequate depth for a mill site in the vicinity of present-day Jasper.

Here there was a dam nine feet high, retaining "an immense head of water," where a lock would be required, and on both sides of the channel the land was flooded as deep as three feet. For the next 11 miles, on through Irish Lake where there was "a species of floating bog, but which can be easily removed," the Creek was "navigable for boats" until it ended in a swamp not much farther on from a bridge--"Koyles Bridge"--which was part of the new road from Brockville to the settlement being established at Perth.

This, wrote Jebb, was the obvious place to establish a military strongpoint with magazines and storehouses, "for land carriage will now become absolutely necessary" as there was no obvious way to cut the channel through to the "Gananoqui stream" three miles to the south-west. The flow in the Gananoque at that point hardly deserved being called even a stream, and for two miles it was "only a few inches deep." Then, however, the effect of a mill dam lower down the river increased it to a navigable depth. As an engineer Jebb saw an easy way out--to construct a dam in the two miles of valley and cut a canal through to the point where the river was navigable. But as a development planner, almost beside himself, he saw a far better alternative. That was to save the two miles of "remarkably fertile and highly cultivated valley," and instead cut a road from the Brockville-Perth bridge at Koyle's, for five miles through to the main channel.

This was to be no ordinary road, but "a *rail way* using a particular description of low cart for transporting stores." He had, he said, had "frequent opportunities of seeing this contrivance applied with wonderful effect," and as "it is usually made of cast Iron," there was an added bonus in this particular locality which made the plan--there is no mistaking Jebb's enthusiasm--nearly perfect. For not only was "the finest ore ... in abundance on the spot," but downstream--at Lyndhurst as it is now called--there was a furnace which had operated for some years and for which great things had been planned had the war with the United States not come to an end (the origins and workings of this local industry have been told in the 1968 *Cataragui Region Conservation Report*). If "Government would again occupy and work the furnace," continued Jebb:

I need not advert to the advantages in an economical point of view, that would result from such an establishment in every article of Iron work. Many things might be made here, for less than the Transport, comes to from Quebec to Kingston.

Almost as an afterthought he added that "if this plan is not carried into effect, it might still be made of Timber which though not so durable would be found of equal service." Then on to Whitefish, at that time also known as Gananoqui Lake and, of course, a different shape than it was to be when By would finish his works there, by means of a canal and lock, and then another lock at a mill dam and into Cranberry Lake which, prevented from reverting to its natural swampy state, had a depth of seven to eight feet. From there, the flow of water from Loughborough Lake, the addition of a lock and "a little labour" on two small rapids together with the retaining of Cranberry "as a reservoir in case of necessity," and there was a clear average eight and a half feet of water communication by the Cataragui to Kingston Mills where, the technical aspects of dealing with the size of the "considerable fall" apart, the way was open to Kingston and the junction of Lake Ontario with the St. Lawrence.



Returning then to the mouth of Irish Creek for the purpose of his report, Jebb contented himself with "a slight sketch of the other communication"--the Rideau itself from that point to Rideau Lake. He noticed that there were several rapids, but identified only those at "Smiths Fall," as about three miles in length "and in one part very strong having a fall of 15 or 20 feet in 100 yards," which he suggested could be remedied without difficulty by means of a lock, and a towing path for good measure. Aware of the newly acquired importance of the Tay with the starting of settlement at Perth, he mentioned it as being 23 miles north of the lowest point on Rideau Lake from where portages by three lakes led to the main stream of the Cataragui and Kingston. But his lack of enthusiasm for this longer route through the Rideau Lakes hardly needed emphasis and, turning again to his own choice, he defended it from a charge of military vulnerability which he suggested was more apparent than real provided the correct measures were taken from Fort Wellington (Prescott).

The precise manner in which Jebb's conclusions were received at headquarters in Quebec is hidden in army records. What is known is that, for the time being at least, the Irish Creek route was officially adopted, and that the survey of the Montreal-Kingston communication went on. Between August and November of the same year, 1816, another young lieutenant of the Royal Engineers, Richard Baron, reported on the Ottawa as far as the Rideau "by Bateau," and estimated that just less than a mere £1,500 (approximately \$6,700) would cover the cost of development. The expenses could be reduced even more, said Baron, if "the experiment of the plan succeed," which Durnford had "proposed to Mr. Jebb and myself of hauling a Bateau up the rapids, on an inclined plane, "because it would "supercede the adoption of many of the methods which I have recommended." That particular sum was not one that would stretch the purse, and it was not long before the works on the Ottawa started. These would drag on for an extraordinarily long time and would certainly not meet with an overly enthusiastic and co-operative reception on the part of many of those involved. This is not a story that will be developed here, and anyway it appears to have affected the Rideau very little. The Rideau itself had to wait longer, for, despite an apparent commitment in principle, there were more than a few persons of importance who were not willing to accept the proposition that the project was more important than the purse.

Whether as a concession or simply as a manoeuvre, however, it took only a matter of months for the first public step. This appeared in the form of a standard government advertisement calling for contract tenders which appeared in the *Upper Canada Gazette* from March to June, 1817.





## Chapter 2

### THE PREPARATION

The advertisement, issued from the Lieutenant-Governor's office at York (Toronto) on February 19, 1817, first stated precisely and simply that:

Tenders will be received at this Office from such Person or Persons as may be desirous of Contracting to render the whole or any part of the water communication between *La Chine* and *Kingston*, by the course of *River Rideau*, navigable for Boats drawing two feet water, and ten feet width, also for Boats drawing three feet water, and twelve feet in width.

The tenders are to specify the number of Locks and the places at which it is proposed to build them; also the number of Flood-gates in each Lock, and the period for completing the work by the Irish Creek.

Then, to show that the authorities had an open mind regarding the alternate route, the advertisement added that:

Tenders will also be received for opening the communication in the direction of the Rideau Lake, and the waters communicating from thence to Mud Lake, and from thence to Kingston.

The response was disheartening but, in retrospect, this is hardly surprising. With the return of peace and the strengthening of commercial links which, in many cases, had scarcely been interrupted at all by the movements of armed men between 1812 and 1815, a backwaters alternative to the St. Lawrence seemed to men of business and those establishing themselves as the political leaders (frequently the same) of the "Infant Colony," as it was popularly known, to be unnecessary as well as probably ruinously expensive. There was, besides, plenty of work to be done in improving the St. Lawrence navigation, and in attempting to keep American Trade to this route. The Navy, with Yeo gone, and with scant regard for bateaux as real vessels, were also more interested in the St. Lawrence and, in April, 1816, even before Jebb had started on his journey, completed a survey of the river and forwarded it to the Lieutenant-Governor. Charges that the design of the Rideau route and its settlement were being interfered with were also discussed in correspondence that passed between the Governor and Lieutenant-Governor, and with other dispatches arriving from the responsible minister in London, Lord Bathurst, concerning costs of settlement, its uncontrolled advance, and troop withdrawals, the effect was to restrict the Rideau outlook even further.

From 1818 it was the St. Lawrence route and its improvement, as well as the control of the trade with the United States that was so inextricably connected with it, that publicly engaged the attention of Upper Canada's administrators. The Royal Engineers, not concerned with public matters, as well as a number of civil engineers, nevertheless went quietly about the business of examining the province's other waterways. For example, in October, 1819, a Lieutenant Catty reported on the possibility of a bateau route from the Ottawa to Lake Simcoe and, a month later, a Lieutenant Portlock on a "proposed canal on the Chippewa to 40, 30 or 20 Mile Creeks." At the same time, a Lieutenant Willson reported to Durnford on the

Aux Sables River and, within the year, Thomas Burnett submitted proposals for improving the Ottawa in the Montreal area. It was, however, with the coming of Lord Dalhousie as Governor, in late 1820, that communication routes, and the Rideau especially, became a priority issue.

Dalhousie's enthusiasm for communication routes was clearly implanted before he came to the Governor's residence at Quebec. From the earliest days of his administration, he kept himself informed on details of settlements and actively encouraged schemes for connecting them, tying Lake Simcoe to the Ottawa, for instance, by road if not by water, and therefore to the Rideau by way of the Mississippi, Tay and Jock, and the military settlement centres of Perth and Richmond. There is more than a suspicion that his mentor was the Duke of Wellington, who, since his victory over Napoleon in 1815, had become perhaps the most popular man in Britain as well as the head of the military Ordnance Department, which supervised such matters as the building of canals in overseas military jurisdictions, and who was within the decade to become the head of government itself. The Duke, even before Dalhousie arrived in Quebec City, had forcefully reminded the Colonial Office of the Rideau project which he plainly did not intend should be included in the general economies of the time. In fact, so far as many of the military settlers were concerned, it was the Iron Duke particularly, and the current Prime Minister, Lord Liverpool, generally, who were responsible for the Rideau settlements. Certainly this was the view of Captain LeBreton who tangled with the administration for years over the use of his property in the construction of Bytown and the Canal. After 1820, settlement under the militia plan was suspended in all places except for the Rideau -- a sure sign of its priority rating.

Yet the growing power of the representatives of the Upper Canadian community in the House of Assembly, reflected particularly in its open conflict with the Governor and Council over tariffs in 1818, aided by a rapidly growing population -- estimated at 125,000 by 1820 -- and the other factors mentioned above, meant that the Rideau project, priority or not, could not simply be imposed from above but would have to be presented as both feasible and attractive. The dilemma of the government in London can be imagined. It did not wish to provide the whole financing for a scheme about which the local Assembly was not too enthusiastic, yet if it did provide the total funds, that same Assembly would certainly wish to divert some of them to projects which, in its impecunious state, it found more pressing. Hesitation, in the circumstances, was more a matter of avoiding conflict than of reconsidering the project.

Dalhousie, aware that the scheme would have to be 'sold', was nevertheless very sure about his actions. In 1820, he wrote that his "first duty" as Governor was to go up the Ottawa as soon as the winter ice had gone from the channel, "across country from Hull through the military settlement then just begun." At Richmond he dined with the superintendent of settlers and half-pay officers and discussed at length with them, as he said, "the public prosperity of that newly settled tract," and also made it clear that the Richmond Landing on the Ottawa would be an essential embarkation point for supplies for the "large population likely to assemble in that new country." He gave orders to the superintendent "to take steps to effect the purchase, and to watch any advertisement of the sale of it, but to report to me before he concluded." Within months, however, captain LeBreton, a retired officer of the 60th Rifle Regiment, bought 400 acres of the Land at a public sale and then offered it to Dalhousie at a price from five to eight times greater than what he had paid. Dalhousie, incensed by the belief that LeBreton



had taken advantage of the information heard at the Richmond dinner party, refused to deal with him and the question of the land's use dragged on in complicated fashion for the next decade. Whether it was in fact Dalhousie's intention to use the LeBreton Flats for the entrance of the proposed canal must remain a matter for conjecture. As one writer subsequently pointed out, there was something to be said for putting the canal entrance:

... about the site of the Richmond Landing and built to connect with the lower part of the natural gully, by which the Rideau River at Dow's Great Swamp (Dow's Lake) emptied its surplus water into Nepean Bay .... The lift would have been the same, the excavation probably not as extended and very little more expenditure, if any, would have been required.... Navigation would have been possible on both the Ottawa and Rideau Rivers.

L. Brault, *Ottawa Old & New*, page 47

More likely, in view of the known facts, Dalhousie simply wished to obtain as much of the Ottawa River front as would include possible entrances and other government needs at the time of construction. Even before LeBreton--who steadfastly denied the Governor's charges and went to some trouble in attempts to prove them unfounded--bought the Flats, Dalhousie asked the Lieutenant-Governor of Upper Canada, Sir Peregrine Maitland, to advise him of ways in which government might obtain this and other sections of land along the front. Maitland replied that the mouth of the Rideau, though a Crown Reserve, had been leased for some time, that the area over into Nepean had been granted 20 years previously by an Order-in-Council, and that the area around the Richmond Landing "is the property of a Mr. Randall." In the latter case Maitland had understood from a conversation with Dalhousie's military secretary, "that the Colonel would employ some confidential person to manage the purchase with the proprietor," and as for the former two cases; "in neither ... have I power to do any thing, being restrained in one by an instrument under the Great Seal and the other by His Majesty's orders," so that "over-ruling circumstances thus deprive me of the pleasure of forwarding Your Lordships' wishes."

Undaunted, Dalhousie obtained a foothold instead at the bay just beyond Nepean Point by purchasing from a Hugh Fraser 150 acres for £750 (approximately \$3,000) in June, 1823. Three months later, Brigade Major Eliot of the 68th Regiment, instructed to report "on the best Position for a Military Depot on the Ottawa, above the Grenville Canal," while "taking it for granted that this Stream [the Rideau River] has been rendered navigable by the Route to Kingston and Malone," rejected the Richmond Landing as "possessing no advantage whatsoever ... except that of its being the Place where the Road to Richmond commences; to Balance which, it has the very great defect of being so situated as not to have any natural obstacle before it, so as to cover it from a Coup de Main." Eliot preferred instead "two Bays on the right bank of the Ottawa Lower down than the Richmond Landing which afford equal facilities with it for debarking Stores, ... the upper one is on the Lot lately purchased from Mr. Fraser, on which there is also another equally good." The next year, 1824, in his "Remarks on the Purchase of the Falls of the Rideau," in which he included a rudimentary development plan of the area soon to become Bytown, Eliot noted that for the Rideau to "be rendered permanently navigable in all probability a Canal will be cut so as to terminate in the first small Bay on the Ottawa, a few hundred yards below the Falls of the Rideau."

That seems already to have become the general consensus. Three years after making the purchase, in September, 1826, Dalhousie told the newly arrived Lieutenant-Colonel By that he took:

... this opportunity of meeting you here to place in your hands a sketch Plan of several lots of land, which I thought it advantageous to purchase for the use of Government, where this Canal was spoken of, as likely to be carried into effect. These not only contain the scite [sic] for the head locks, but they offer a valuable locality for a considerable village ....

As the purchase was made by me for the public service ... I place the whole in your hands for the purpose I have now explained.

This purchase of the canal entrance was, however, only a part of the total effort in the half decade after 1820. Composed of men who were being swept forward on a tide of enthusiasm for commercial changes, which had already engendered the establishment of banking facilities as well as canal building mania to the south and in the lower province, the provincial Assembly met in York in January and February, 1821. After laying the legislative framework for the introduction of a uniform currency, it passed an Act creating a commission "to explore, survey and level the most practical routes for canals between Lake Erie and the eastern extremity of the province." To those for whom commerce and canals were inextricably interwoven, there was no doubt that the measure was aimed principally at facilitating the construction of the Welland Canal. The administration was equally adamant that "the improvement of the inland navigation of the province" should include the "opening of communication through the interior from Kingston to the Ottawa," and the matter was the subject of correspondence that left the Lieutenant-Governor's office in February, 1821. The amount of money initially authorized for the surveys, £ 2, 000 (or \$8, 000), apparently dampened some of the early ardour, and it was not until mid-April that Captain John Macaulay of Kingston, who was to head the commission, applied to the Lieutenant-Governor's secretary for an appointment as commissioner, and by mid-May, he was accepted. Other well-known persons, including Robert Nichol of Niagara Falls, Thomas Clark of Stamford, and Captain William Marshall of the Lanark military settlement, declined appointments offered them by the administration, and by August, when replacements had been found for them, the commission still had not met and one of its members complained to the Lieutenant-Governor that the coming of fall would prevent anything being done until the next year.

The commission, from this slow start, worked steadily through the next three years and amassed a considerable amount of detail, much of it dealing with the St. Lawrence and Welland routes.

The Rideau route tended to be seen as a separate venture which, in view of the British military interest, need not necessarily prove to be Upper Canada's financial burden. (Samuel Clowes, the commission's civil engineer, later told Colonel By that the commissioners sometimes made him feel that with the Rideau he should simply be going through the motions.)

Several attempts were made to obtain Lower Canada's agreement to various expense-sharing formulae, but without success, and from military correspondence then and later it is clear that a number of officers suspected that the commissioners had their own views on who should eventually pay for any improvements made on



the Rideau. Samuel Clowes, who had several decades of experience, did nevertheless produce a long and detailed report, the most thorough that had been done up to that time, by April, 1824.

Clowes' report was something of a landmark in the building of the canal, for it served both as a basis for the British government's decision to proceed with construction on its own account, and therefore also served By as a ready reference. As well, in its reasoned disapproval of the Irish Creek route, it put an end to this aspect of Jebb's scheme, and other alternatives which had included the South Nation River and Mill Creek, in favour of the main channel of the Rideau. Essentially it was the low water level in the Irish Creek and the lack of continuous flow through to the Cataraqui without considerable cutting that led to Clowes' decision. His plans show that he thought far more in terms of a canal than simply of the communication that Jebb had considered, for he included in his plans estimates for three different levels and widths, the first being 7 feet by 40 to 61 width, with locks of 100 by 22 feet, at an estimated cost of more than £230,000 (approximately one million dollars), the second 5 feet depth by 28 to 48 feet width, with locks 80 by 15 feet for a cost of nearly £146,000 (over \$600,000) and, the lowest estimate, 4 feet by 20 feet to 32 feet width, with timber locks instead of stone as for the other two, of 75 feet length by 10 feet width, for a cost of a mere £62,000 (less than \$300,000). In other respects Clowes' recommendations did not greatly differ from plans later followed by By. Clowes' preferred entrance was lower on the Ottawa than the bay that By chose, but from there to Burritt's Rapids there was no practical difference — Clowes' planned canal at that point requiring the use of land under cultivation and By's following the opposite bank to near present-day Merrickville where the two lines converged. Elsewhere By's use of waste weirs and dams was to be greater than envisaged by Clowes who suggested a total of ten throughout the route.

Clowes' report was forwarded to London and considered there even before the Macaulay Commission's final, overall report on "inland navigation" was tabled for the Upper Canadian Legislature in April, 1825. In London, cost rather than feasibility remained the problem, but on the whole Clowes' findings were considered to be a vindication of steps already taken. The Commission's report too had the mark of official sanction to it in its discussion of a Rideau Canal as a work of great military importance. If, reported the commission, there were to be a future war comparable to the last with the United States, it was its belief that:

... the safety and the saving of transport conducted by such a channel would ... fully compensate to the nation the charge of the improvement, and it is most evident that to give full effect to the sound and liberal policy which has created the military settlements on the Rideau and introduced since the war a loyal population of more than ten thousand souls where there was before no inhabitant, and which is now surmounting, at a considerable expense, the interruptions of navigation, on the Ottawa, it is necessary to perfect the water communication removed from the enemy's frontier and leading in truth from the ocean to Kingston, which is the key to Lake Ontario and the principal military station in the province.

But the nation, as events quickly proved, was not to be considered as synonymous with Upper Canada any more than the necessity "to perfect the water communication" was, so far as many were concerned, to devolve upon the province alone. The more prevalent attitude was that those who had set in motion "the sound



and liberal policy" should perhaps see it through to its conclusion on their own account. The St. Lawrence-Lakes route and the American carrying trade by comparison promised commercial returns that were worth fighting for. Then again, the Imperial Government was already committed to part of the Montreal-Kingston route by the Ottawa and had already expended sums of money for the works on that river (from 1819 to 1833 the total voted for the water communication improvements, exclusive of the Rideau Canal, was to be almost one million dollars). It was certainly logical to suppose that it would undertake the entire project from start to finish rather than let all its plans go to waste.

The British government at this point, with the official admission of the province that the Rideau Canal would be a worthy undertaking, and with the province's own estimates as produced by Clowes to hand, played the card that it had been holding for some time to its chest. Through the Colonial Office it offered to the provincial Legislature a loan of £70,000 (approximately \$300,000) which would cover at least the lowest of Clowes' three estimates and nearly half of his second one for a canal with five feet depth (as had the Lachine Canal, then nearly completed). The inference was plain that the two levels of government should co-operate as partners so far as costs went until the major beneficiary -- the province -- should be able to assume the liabilities. The provincial Legislature, however, would have none of it, and refused the Rideau loan, stressing prior commitment to the St. Lawrence route.

The British government, the responsibility returned to it and with time no longer on its side, reacted immediately by instructing a military commission then in the process of reporting from Canada on the country's defences, to investigate further and make such recommendations as, in all the circumstances, seemed practicable.

The commission's head was General Sir James Carmichael Smyth, a colonial and ordnance administrator of considerable standing who was now and for some years ahead to be something of a grey eminence in the affairs of the Rideau Canal. His commission too produced a lengthy report, using Clowes' as a working basis, and recommended that his second estimate be adopted but with the difference that the locks measure 108 feet long by 20 feet wide. With the 5-foot depth retained they would conform to those of the Lachine Canal. Increasing the estimate for each lock by £500, the committee of engineers reached a total estimate for the canal of £169,000 (over \$750,000) by the simple expedient of adding £24,000 to Clowes' original estimate for that scale of works of £145,000 plus. It is worth noting here that even before By left England he stated that on the basis of his preliminary enquiries he would have to consider that sum too small by four or five times, particularly as the Lachine Canal, only seven miles long and with a lift of only 42 feet, "cut through a valley formed by nature for a canal and situated close to the most thriving city in Canada and conducted under the superintendence of men self-interested in having it completed in the shortest space of time, and in the most economical manner," had cost little less than what Sir James Smyth was offering as an estimate for a project which would dwarf that of the Lachine Canal many times over.

What was in Smyth's mind at this time can only be surmised. From his correspondence it is easy to see him as a military man whose style was to concentrate on one problem at a time to the exclusion often of the wider view. There is certainly every indication that he was an intelligent man but, in the circumstances of the time, with Dalhousie having great trouble in controlling the locally elected

officials and with the old cry of "the power of the purse" being bandied about, Smyth seems to have recognized that he was being asked to play something akin to a diplomat's role, one that he found awkward when the problem seemed to him to be first and foremost a military matter. There is reason to suppose that he felt that by accepting Clowes' estimate--which as was noted earlier was rumoured in some military circles to have been deliberately optimistic in order to inveigle the British government into the scheme--and, by adding to it a good round £500 extra for each lock, he was effecting the sort of reasonable diplomatic compromise that would make it easy for the provincial administration to opt back into the scheme when and if it chose. For he had also been instructed "to ascertain what assistance, if any, could be procured from the Provincial Government towards carrying out this important work." Had Smyth been able to see "this important work" as something more than part of a defence plan with a token to settlers thrown in, he might have concentrated more on this part of his instructions. His views on the matter were, however, quite basic:

The great object & use of the back Water communication from Montreal to Kingston, is to enable Government to forward Stores, Provisions, Ammunition & Troops to the Upper part of the Province without the risk of capture or being engaged in time of war in petty Hostilities with the Americans on the St. Lawrence.

That given, it was the province's general lack of funds that impressed him, and he therefore reported:

...that there does not appear to be the slightest chance of any pecuniary aid from the Province of Upper Canada. The settlers are very poor and the Province is still in its infancy. Excepting it is undertaken by His Majesty's Government we are afraid it will never be executed. Companies are forming and cheap and temporary expedients are likely to be resorted to for improving navigation of the St. Lawrence in order to enable the produce from Lake Ontario to be forwarded to Montreal and Quebec, with less trouble and risk than at present. The important advantages of such a communication in the rear of the frontier are not likely to be appreciated by the bulk of the inhabitants of the Province; nor is it probable that for the attainment of a remote good they will agree to any tax or immediate pecuniary loss.

He admitted that purposes other than military had been suggested to him, and he was certain that he had made allowance for them, but he was not at all willing to accept that supplying the needs of settler farmers had any real relationship to commerce. Nevertheless he added:

It is evident a Canal of small dimensions, if these [military] purposes only had to be considered, would have been sufficient. The Tolls which may be hereafter derived from these Canals were however also to be remembered. It was understood that the settlers and Canadian Farmers were more likely to avail themselves of a Canal which would receive the craft which they employ to navigate Lake Ontario, the Ottawa and the St. Lawrence, than of one which would require the use of several vessels of different sizes, and the consequent transshipping of their produce of each change of conveyance between Lake Ontario and Montreal. These considerations



caused the adoption of Locks of 20 feet in breadth for the Grenville Canal and which dimensions must influence the remainder of the Water Communication. These dimensions are sufficiently large to permit the circulation of Gun boats from Kingston to Lake St. Lewis (at Montreal) to oppose any attempt to pass the St. Lawrence from the Chateaugay [sic] side.

Yet the point had been explicitly made by the Macaulay Commission that the canal:

... claims our attention, as connected with a state of peace. In our intercourse with Lower Canada, by the sole route we can now pursue, we must pass through the waters over which jurisdiction is claimed by a foreign power, and our trade is consequently exposed to vexation, even during the existence of amicable relations between that Power and the Imperial Government — Through a deplorable oversight of His Majesty's Commissioners for determining the boundary line in this quarter, the United States have acquired a complete control over the navigable Channel of the River St. Lawrence in the neighbourhood of Cornwall ... a right which it is attempted to support on the authority on international Law... a plausible pretext for claiming at that point, the absolute dominion of the River, as well as the power of stopping our boats and rafts on their passage to Lower Canada, or of imposing on them such transit duties as they choose, they can fetter our intercourse with the seaports at pleasure, and render the St. Lawrence a very precarious highway for our commerce.

In short, although for reasons already mentioned the Commission did not overplay the point, the Rideau properly developed, was practically assured of being a major commercial route from the Lakes to Montreal. Yet this was precisely what Smyth's concept did not include. Several months after his report was made, in early 1826, Smyth was particularly careful, when charged with instructing By before he left for Canada, to advise him to watch out for men of commerce:

... strong representations will be made to Lt. Col. By by many respectable inhabitants and several of the principal merchants, recommending the canal to be conducted by Ryle's Bridge as being the nearest line and requiring only a very short land carriage. Others will propose the Gananoque River instead of Kingston as the mouth most convenient termination of the Canal on Lake Ontario in a mercantile point of view. These considerations might be worth attending to. As it is, however, an uninterrupted Water Communication the Government have in view and the circulation of Gun Boats between Montreal and Kingston, that line only which will answer these advantages must be adopted. The Canal must end at Kingston. The military reasons are too obvious to require being recapitulated here. The Canal will have to be conducted by the Rideau River, the Rideau Lake, the Mud Lake (Newboro Lake), Cranberry March, and Kingston Mill Stream.

It is difficult to escape the conclusion that by this point Smyth was even prepared to consider that military and commercial reasons were inimical one to the other. Certainly there was nothing that could be construed as mutual benefit,



and the settler farmers apparently occupied a sort of no-man's land in between. Yet Smyth was apparently so assured of his ground that he unhesitatingly informed the Ordnance Department in London that:

The Legislature of Upper Canada, in which Province the Canal will be entirely, will unquestionably be so fully aware of the benefits they will derive from the execution of this important work as to feel disposed to meet the views of Govt. in the most liberal manner ... so much benefit[would result]... that the Provincial Legislature may with great fairness be expected to meet all expences [sic] of making over the ground required to the Ordnance.

That his purpose was not altogether the same as that which others had in mind, seems to have bothered the General very little, and that there were subtleties of intent involved he was apparently only vaguely aware. His optimism may be contrasted with a resume on the subject written a while later by a senior member of the British Cabinet.

If this expectation [of the hope of paying for land purchases out of existing estimates] should not be realised the Territorial Revenue is not equal to such a charge, and however objectionable the principle is, of carrying on local Improvement in the North-American Provinces at the Expense of the Mother Country, His Lordship is decidedly of opinion that any application to the local Legislature would prove unsuccessful, and that it would therefore, be inexpedient to enter into a new controversy with the Assembly on this Subject.

General Smyth, however, was not called upon to put the pieces together into a related whole. The task of putting the project into practice was that of Colonel By who was an engineer first and a soldier second. The British Government's decision to proceed with the work without further delay, in a matter of months after the receipt of the Smyth Commission's report, resulted in his confirmation as superintending engineer early in 1826, when scrutiny of the details had hardly begun, let alone been fully considered.

By was not at that time on the army's active list, and was approached by General Mann of the Ordnance Department to take charge of what was recognized to be probably the most ambitious work of its kind yet attempted. By was then 46 years of age and had been an officer for the previous quarter of a century since graduating from the Royal Military College at Woolwich, London, the training ground for officers of the Royal Artillery, the corps which he joined for several months before transferring to the Royal Engineers. From 1805 to 1811, he had spent six years in Canada during which time, as a captain, he attracted notice for his work on the fortifications at Quebec and his construction of a canal at the Cedars (outside Montreal between today's Valleyfield and Dorion). Apart from this service, and part of a year he spent with Wellington in the campaigns in Portugal in 1812, By's appointments had been home ones, in England, and for the nine years previous to his being placed on the retired list in 1821, he had command of gunpowder mills at various southern locations. His retirement was a routine one, brought about by the general reductions in army strength that had also, as was seen earlier, been responsible for the return of troops from Canada, but, also through administrative routine, he was promoted to Lieutenant-Colonel in 1824.

General Mann recommended By in the first days of February, 1826, "as an officer capable of constructing the Rideau Canal," and it was immediately confirmed that the "Rideau [was] to be under the Ordnance & Lt. Col. By's superintendence." On February 17, the Ordnance Board, having received Wellington's advice as to the "sum proposed to the granted Parlt. this year for new Works in His Majesty's Dominions in North America," and also "having conferred with the Chancellor of the Exchequer upon the subject," reached the decision that works to the extent of £25,000 (over \$100,000) "only should be undertaken this year." Of this £15,000 was to be applied to the Rideau, and the remaining £10,000 to the Grenville Canal.

On March 14, Smyth, detailed to brief By, informed him that it would be:

More economical and more expeditious to execute the greater part if not the whole of the Rideau canal by contract... the only inconvenience attending the execution of the work by contract that I am aware of is that in that case the whole of the cost must be asked for from Parliament at once as the contractor must be at liberty to commence as early in the season as circumstances will permit it, without waiting for the passing of an annual grant. He must be enabled to arrange for the feeding and lodging of his work people for one or two years before hand which he could not do if a fresh contract is to be entered into each season.

That was all well and good in itself, but By, having been told that the estimate for the Canal was £169,000, was quick to see how intolerable this sort of arrangement would become when it came to actual operations. He would be simply condemned to an attempt to carry out somebody else's vague plans, with no financial leeway whatsoever. It was at this point that he intruded his opinion "that that sum was equally inadequate for 4 or 5 times that sum would be required." By, seemingly unimpressed by much else of what Smyth had to say (substantially the same as what has been noted on previous pages), "waited the same day," as he put it "on General Mann for instructions," and asked for a clarification, at least of the financial issue, as it was obviously basic to the whole undertaking. In By's recollection of the conversation--and there is no record of its ever being disputed--Mann agreed that:

... it is impossible to decide what the sum required will amount to, You will have to use your own judgement as the work is entrusted to you. It is to be carried on as an Ordnance Service but, when completed the accounts are to be handed over to the Treasury. As soon as you receive your Instructions you will quote their date and your Authority for all Monies.

When, on June 21, 1826, By did receive his official instructions for making payments, it was by way of a departmental communication to the Ordnance headquarters in Canada, at Quebec, which read:

The Secretary of State having strongly expressed his opinion and desire in his letter, 18th. Aprill last, that the Work should be carried on with as much dispatch as possible, and that no delay should arise in the Spring by suspending the Work until the Arrival of the Authorized estimate for the Year 1827, and each succeeding year, you are to make the payments required by the Engineer Department on production of the usual Documents.



That all of this represented little more than a working arrangement, is self-evident. The same was true where By's other instructions were concerned. On April 10, shortly before leaving England, By wrote to Mann that he understood that "the proposed Rideau Canal is 131 Miles in extent passing through a line of country but little known," and that "not fewer than 45 locks will be required and 10 Weirs comprising an extent of 4050 feet." Because of "the extent of this work," he would require "the assistance of one Capt. & two Subaltern Officers of Royl. Engrs - One Clerk of Works, one Overseer of Works with permission to increase the number of overseers as the Service may require." During the coming winter of 1826-7, By proposed "felling timber, clearing the towing paths and collecting Materials to construct the dams." This was in substance approved by the Secretary of the Ordnance Department four days later, although the number of officers was left uncertain. It may therefore be assumed that By realized that he was setting out on an adventure as much as on a specific mission when he left England in April.

That that was the case was made abundantly clear in the following letter sent by General Mann on April 21 to Dalhousie in Canada:

I have the honor to acquaint your Lordship, that the Master General and Board of Ordnance have approved of Lieutenant Colonel By of the Royal Engineers being appointed to conduct and execute the construction of the Rideau Canal, in Upper Canada, assisted by a Junior Officer; His specific Instructions have not yet been prepared by Government, and as he is about to sail immediately to Quebec, they will be forwarded to him, as soon as they are received, of which I shall take care to appraise you; Therefore all the information I can at present give you, is that it is intended he should be entirely independent of the Commanding Engineer in Canada, except in such matters as may require his Assistance without prejudice to his own particular duties. All Reports from Lieutt. [sic] Colonel By will however be transmitted to your Lordship, through the Commanding Engineer.

This was received by Dalhousie at Quebec on June 1, 1826. On July 4, another letter was sent to him by Mann, saying that "specific Instructions" had now been drawn up for By, as well as for Lieutenant-Colonel Wright who was to take charge of the Ottawa River works:

... by which it is decided that those duties, shall be under the Control of the Commanding Engineer in Canada, who will report to you accordingly, and Communicate to you ... all the Correspondence and Minutes, that have occurred in London on the subject of the proposed Works, by which the spirit of the Instructions given will be best understood.

The administrative support for By's work was plainly not planning at its finest.

By landed at Quebec on May 30th, and after the customary social round of the time, made his way to Montreal where, his "specific Instructions" not having arrived, he busied himself in general preparatory measures. By the beginning of July, however, he had so thoroughly acquainted himself with local realities that he put pen to paper and, in a mood of obviously great enthusiasm, wrote to General Mann in London a summary that was both remarkable and quite unlike any other that had been made so far on the subject under a military label. In it, By



said that he had examined "the Military Defences of Canada," and found it "self-evident" that a "steam boat navigation"--not a bateau route or one for similar types of craft--would not only "at once deprive the Americans of the means of attacking Canada," but would also "make Great Britain mistress of the trade of that vast population on the borders of the Lakes, of which the Americans have lately so much boasted." The many canals that had been cut on the American side "would in the event of our steam boat navigation being completed, ultimately serve as so many outlets for British manufactured goods." Consequently it was his "duty," thought By, to point out "that all the Canals at present projected, are on too confined a scale for the increasing trade of Canada." Not only that, but "for Military service they ought to be constructed of sufficient size to pass the Steam boats best adapted for navigating the Lakes and rivers of America," which meant vessels measuring from 110 to 130 feet in length and 40 to 50 feet width, drawing 8 feet of water when loaded. These, he stated simply, "are capable of being turned to Military purposes without any expense as each boat would carry four 12 pounders and 700 men with great ease." Therefore, "the moment our canals & Locks are completed on this scale, we shall not only possess the trade of all that immense population on the borders of the Lakes, but also have Military possession of the Lakes." Steamboats of the precise type that he had in mind were "now building on the banks of the St. Lawrence," which, so far as he was concerned, "is one of the great proofs of the increasing trade and prosperity of the country." Ranging over the whole range of canals then either operating or projected, By sought to show how the Lakes, St. Lawrence and Ottawa could become interconnected passageways for steamboats for a total sum of £1,200,000, of which £400,000 would be required for the Rideau. Had such a course seemed feasible, as it did not in those early days of capitalism, one suspects that By at this point might have thrown his support behind private companies. As it was, he had thoughts on that matter: "I am of opinion Government should have the entire control over that passage, and that the water communications of Canada should not be confined and shackled [sic] by Chartered Companies." This brought him back to financial considerations--he had after all been authorized to spend for the time being somewhere in the region of £169,000 only--and he noted therefore that "These sums may be more or less than necessary for executing the proposed works," but "the Tolls on this extensive line would in a very few years repay, not only the interest, but the principle, and ... the uninterrupted line of communication would be the means of opening a market for British goods, much greater than has yet been anticipated by the most sanguine calculators." This was altogether an extraordinary appeal for an officer sent to carry out General Smyth's military plan, but By only emphasized before he was through, that:

I hope I shall receive orders to commence these works with promptitude and vigour, as that would relieve thousands from distress, and reanimate both Provinces [sic], which certainly appear to feel the general pressure of the times.

Communications being slow (at least two months, sometimes more, were required for documents to be sent, examined and answered from either side of the Atlantic), there was no immediate reaction to By's letter. Both the original and a copy, for Dalhousie, were sent to the Governor's Military Secretary, General Darling, the first for forwarding to London, but whatever response there was in Quebec is not known. By fell sick in Montreal, as did Captain Daniel Bolton of the Royal Engineers who arrived in that city on August 9 as his assistant, with the age-old malady of "dysentery," and it was therefore September before By was able to move up the Ottawa. In the meantime, John McTaggart, who had been appointed by the Ordnance in London to act as By's Clerk of Works, arrived in Montreal and By also hired two Overseers of Works. Learning of the revised administrative

arrangements in August, By wrote to Colonel Durnford, the Commanding Royal Engineer: "Believe me my dear Colonel the responsibility of the Work being thrown on you, has relieved me very much . . . [and] be assured that my exertions shall not be diminished and that I shall receive & execute your commands with alacrity and pleasure." At the same time he requested and received Durnford's permission to add to his strength a young Lieutenant of Engineers, Henry Pooley, "an attentive, zealous officer," who as a "volunteer is worth two pressed men."

Durnford, several days later, on September 7, received from Darling in Quebec, By's "specific Instructions" from the Ordnance in London, dated June 21 (and therefore made before By's "steam boat navigation" letter was written), and forwarded them to him, together with "five documents for the particular Information of By." Dalhousie, meanwhile, had been advised from London of the complicated methods by which By's payments and supplies were to be made, involving various sections of the Ordnance, the Colonial Department, and other agencies of government--"services to be defrayed immediately by the Ordnance will be issued out of the General Treasury Chest although the Money will be provided by the Colonial Department in the Estimate Submitted to Parliament and its Expenditure afterwards accounted for agreeably to the above"--and so on. What is important here is not the technical methods but the fact that By was already being saddled with an administrative structure formed from several different jurisdictions. This would impede him in one way or another for the next half-dozen years.







Brewers Lower Mills in progress (top) and just completed (bottom). Sketches made by Thomas Burrowes, of Lt. Colonel By's civilian establishment, in 1831-32. (Ontario Department of Public Records and Archives).







### Chapter 3

#### THE WORK COMMENCES

Durnford, his position as go-between confirmed, also wrote to Dalhousie's Military Secretary in early September, 1826, that he would welcome "proceed[ing] with such arrangements towards the execution of the Services alluded to as may present themselves to me, as of primary importance." Dalhousie saw "nothing to prevent [this] proceeding." By, being so informed, asked to leave for Hull immediately, to "examine the Ottawa for some distance below the outlet of the Rideau, to ascertain [sic] the best situation for the entrance of the proposed canal," after which he would make "minute inspectings of the ground between the point I may decide upon ... for the junction of the Canal with the Ottawa and the Black Rapid on the Rideau River." And, with his assistants, he would hopefully "assertain [sic] the quantity of land required for the service, that Sir P. Maitland [Lieutenant-Governor of Upper Canada] may put me in possession of the said land."

Dalhousie had still not, as Darling wrote, "received from the Secretary of State [for the Colonies] or other Department of Government any direct communication on the subject of these Instructions" having to do specifically with working arrangements. But the Governor nevertheless agreed that this was a matter of "primary importance," and By, with Pooley, left for the Rideau in mid-September. Making their headquarters at Hull, the only real settlement in the area, where they arrived on September 21, By and Pooley spent several days on a "minute inspection of the various bays" near the Rideau's mouth, and "decided on the upper as best," which, as was seen, was also Dalhousie's choice. On the 26th, Dalhousie and Durnford arrived together at Hull and "went over the ground" with By, approving everything that he had done. The tour of inspection was so convivial in fact that Dalhousie, forsaking the usual letter writing procedure that had the Military Secretary and the Commanding Engineer act as intermediaries, sat down the same day and wrote By personally a warm confirmatory letter "approv[ing] in the strongest terms" the suggestions that By had made, and turning over to him responsibility for the land purchased from Fraser in 1823.

What particularly pleased the Governor was that By had volunteered his professional opinion that a bridge and timber slide at the Chaudiere Falls could be built for £2,000 (approximately \$9,000). Dalhousie, "much gratified" at this "very great publick [sic] benefit," being "obtained at a moderate expence [sic]," authorized him to proceed "without any delay," and to draw for the time being £1,000 "in such manner as you shall think fit," but to consider this "as altogether distinct from those which you have in charge on the Rideau Canal." His "warmest thanks," he concluded, were "due to you," and then under the same date, September 26, he "hastily" dashed off a note to Sir Peregrine Maitland, the Lieutenant-Governor repeating how pleased he was at what he had seen, and telling him that he was putting £1,000 of the timber dues collected at the Chaudiere towards By's suggested improvements. "I know I incur responsibility [sic]," he wrote, "but in my station I consider it my duty to do so; and I ask your concurrence to this proposal--All proper steps shall be taken to have the sanction of His Majesty's Government."

He had, he added as a postscript, "while upon the spot," taken "the liberty of requesting that the Commissioners will not grant any part of the Crown Reserves through the line of Canal may pass," and he hoped that Maitland would "convey to them your further authority." Major Eliot--the same man who had done preparatory work for the "water communication" in 1823-4--also joined the party at the



Chaudiere. It was he who was charged by Dalhousie with informing the land agents at Perth, Richmond and Chats, "that no more locations may take place for the present, on or near the line of the proposed Rideau Canal; as it is impossible to say, where such occupation might interfere with that work." He did this the same day. There was no doubt that By had made an important friend in Dalhousie.

By, certainly aware of this, wrote directly to General Mann on October 1, that "His Lordship and Colonel Durnford have rendered me such prompt assistance, that late as the season is, I have no doubt of making a good commencement of the work this year," and asked for a Company of Sappers (Engineers) to be sent out to him (Smyth, it will be remembered, had recommended contract labour). In addition, as a result of his survey he had decided that the locks could be 100 feet long instead of 150 feet, as with "strong natural banks" this would be sufficient "to admit the steam boats working their paddles," and they could "do away with the necessity of forming tow paths along the banks." No surer sign of confidence could have been made, for not only was By proceeding on the assumption that the Canal would be navigable for steamboats, but he was taking a step further and doing away with General Smyth's tow paths. The next day, October 2, there was a second report, still from Hull, but this time for Darling, in which By proposed that his work as planned be started early the next season at three different places: at the ascent from the Ottawa, at the Summit Level (Rideau and Newboro Lakes) and at Kingston (apparently Mills), at each of which he expected to have 2,000 men at work, and for each of which, therefore, he would require a staff surgeon (or military doctor).

This might perhaps have seemed enough for the year, but the complications were barely beginning. The Inspector General of Hospitals at Quebec, Dr. J. Forbes, promised reasonably to look into the matter of providing staff surgeons. But at the same time members of the Commissariat department in Montreal, the Ordnance Board in Quebec, and paymasters elsewhere had an unsophisticated exchange of opinions concerning whether or not payments and the carrying around of cash, as well as its being entrusted to suspicious persons, were being handled according to regulation and established custom. By had added somewhat to this complication not only because he needed cash in Hull, but because on September 30 he had had Captain Bolton put in a requisition at Montreal for a medley of articles such as: "Anvils for Smiths - medling - 1; Augers Carpenters - without Shafts - 50; Axes Broad - unhelved - 50; Do. - Felling - 50; Do. - roundeyed - 25; Bellow Smith - 1; Bills hand - 50; File Warding - 25; Stable Forks - 25; Gimblets - Nails - 50." Among other items requested were garden hoes helves, hammers, pick axes, kettles, mattocks, palliasses, padlocks, "Locks Iron - dead word complete - 25," and so on--a list that was guaranteed to upset military storekeepers. Not only that, but the whole matter of land purchasing, who was and was not trespassing, where the money was to come from (for Maitland, as has been observed was always extremely careful so far as the fine points of legal land tenure went) was becoming disturbing.

Colonel Durnford, wondering for what sort of scheme he had been made administratively responsible, went to see General Darling in late October and appealed to him for help in at least putting matters on a working basis. Together they drafted a memorandum for Dalhousie which, answered in the manner they knew it would be, would at least serve as a temporary official order for subordinates who were loath to act when specific regulations were not available. Unlike most military communications, this one was made up of four numbered questions:

1st In case His Lordship has not received such communication from the Secretary of State as will authorize immediate purchase the ground required for the Rideau Canal & the New Fortifications proposed where Govt. have not property....

Will his Lordship sanction the commencement of Survey, by clearing Wood &c. with the permission of the Proprietors under promise of giving them reasonable compensation for any damages sustained....?

2nd Will His Lordship be pleased to order a commissariat officer being stationed at Hull carrying a suitable supply of money & Provisions say for the present £500, thirty barrels of Pork, Ten of Flour & one Puncheon of Rum.

3rd Will His Lordship be pleased to issue a general order that Rations of Provisions are to be delivered out....

4. Will his Lordship be pleased to approve that Mr. Sisson Ordnance Storekeeper Montreal shall station a person either from his Office or to be selected by him to act as Paymaster & Clerk of Stores at Hull, or shall Mr. Reed late Paymaster 60th Regiment receive this temporary appointment?

Dalhousie gave his official reply a week later, through Darling, stating that although he had "not received the expected communication from His Majesty's Secretary of State authorizing the important Services alluded to," he nevertheless approved Durnford's proceeding as long as he was careful not to go beyond the limits of the instructions already received from the Ordnance Board in London. In the meantime, he had written again to Sir Peregrine Maitland concerning the required ground asking him "to afford every facility ... so as to prevent ... opposition or difficulties in the occupation of such ground as it may be necessary for them to enter upon in making the requisite Surveys Sections &c." Until the matter was regulated, he approved of prior agreements for compensation and arbitration. There was to be no more picayune manoeuvring by the supply departments. By order of Dalhousie: "The Commissariat & other Departments will ... issue such Camp Equipage--Rations of Provisions or other supplies as may be found necessary ... & a Commissariat Officer will be attached to the service under Col. By with a supply of Cash."

It was enough to be getting along with and for By, already into the work on the ground at the Ottawa end, a decided improvement. From his small office in the gully beside the intended ascent from the Ottawa (the building, of local limestone, was completed in 1827 by Thomas McKay, one of the contractors on the Canal, and is today the Bytown Museum), By reported on November 22, the day that he returned to Montreal for the winter, that he had improved the timber slide and was well satisfied with it. Although the other Chaudiere project, the bridge which was to serve as the main supply line from Hull, had suffered a setback through failure of the first arch, it was to be re-built by McKay with better stone. Furthermore, the Canal works proper were "going on well." The gully where the first locks were to be built had been cleared of timber to a height of 80 feet above low water on the Ottawa, and the approximate sections for the construction toward Long Island had been planned. As well, By had made a quick trip to Kingston, where he had met the civil engineer, Samuel Clowes, who had made the 1824



report, and had been impressed by him to the extent of accepting his verbal advice to investigate the swampy north side of the river as best suited for development. What seemed to him important too, in view of the difficulties that were being encountered with land rights, was that Nicholas Sparks had given By permission to take 200 feet of his land on each side of the Rideau, a precedent which By optimistically hoped other landowners would follow. Finally, on the negative side, he had "had some trouble" with the would-be labourers, Irish for the most part, who were already arriving in the district. Apart from the protection of the stores and buildings, By was concerned "to preserve the Trees" from them, and he suggested that a sergeant and 12 men be sent up early in the New Year as a patrol for the purpose.

Matters had also been going forward at other levels. Lieutenant-Governor Maitland, responding to Dalhousie's latest request for civil government's help in making land available, had turned the matter over to Attorney General M.B. Robinson. He reported back on the last day of November in a long letter on the philosophy of expropriation, prerogatives and precedents. As a first method, he advised "private Treaty with the party," as there was "not inherent in the Crown a right to resume [land] in time of peace," which he thought might sometimes result in paying "something more than a fair equivalent." However, in order to prevent "fair equivalent[s]" getting out of hand, Robinson suggested that "the line of the Rideau Canal should be settled before any considerable progress is made in the works," and that By, as supervising engineer, having "satisfied himself that he can safely depend on his being able to adhere to this line, but before he has so far proceeded as to make it evident that he must adhere to it," the proprietors of the required land should be asked to "surrender ... the space required, and if they will voluntarily surrender it, a deed should be at once executed." As the Canal was, thought Robinson, to pass through "a natural chain of waters, and ... a barren rocky Country," the chance of amicable settlements by this procedure was probably good. The practical alternative was to have the Legislature produce a Rideau Act, but this in turn would likely have the effect of prolonging compensation proceedings "that I should like to see avoided." If a bill was to be passed through the Legislature, it would then have to include provision for:

1st The immediate occupation of whatever land the Commanding Engineer should deem necessary for the Canal--

2nd The entry upon adjoining land where it may be required for carrying Materials &ca.

3rd Restraining all actions at Law for any thing done in prosecution of the Work.

4th Declaring that the land lying within such limits as may be clearly marked out and defined by the Engineer at the conclusion of the work shall be for ever vested in the Crown.

5th Prescribing an equitable method of adjusting by arbitration (where it can not be otherwise arranged) the compensation to be made for lands taken or injuries committed in the progress of the work or occasioned by the Canal.

Sending a copy of this letter to Dalhousie on December 2, and also one to By, Maitland contented himself with the observation that it "completely embraces all that I could desire to remark on the subject," and added the assurance that the



"Officers of Engineers who may be employed in this Province will receive from me every assistance and facility within my means to afford." This non-committal reply was hardly calculated to please By, who would be the one to have to implement the furtive surveys and secret lines and obtain "voluntary surrenders" of land. Land expropriation and compensation, as he already had good reason to know, was too great a problem to be handled in any way but as straightforward a manner as circumstances would allow. Immediately he wrote to Dalhousie (the two of them seeing eye to eye in many things, By now frequently dropped the formal practice of communicating by Durnford and Darling) that he had found it difficult "to obtain information relative to the proprietors of land, through which it was proposed to cut the Rideau Canal," and that all in all he did not see how he could "proceed with the rapidity required by His Majesty's Government," unless he was formally empowered by the Legislature "to take possession of such portions of land as the service may require." It was surely better to have the matter settled at the earliest opportunity rather than wait for the time that "each individual can judge of the advantages, or disadvantages he, or his neighbour may sustain" (this was in direct reply to some philosophizing by Attorney General Robinson). Consequently he "most respectfully" requested "Your Excellency will be pleased to cause a Bill to that effect to be brought before this session."

The reaction in Quebec must have seemed strange to By, although it was not necessarily inconsistent with earlier actions. In early January, 1827, he learned from Durnford that as the "matter refers wholly to the Legislature of the Upper Province," it should not have been referred to Quebec, and that his letter had therefore been forwarded to the Lieutenant-Governor at York, to whom he "should address himself directly," as Maitland was civil head "of the Province in which the lands lay." The intricacies of decision-making from that point need not be examined here. There was, anyway, little desire to have By follow a procedure that he was opposed to, so that legislative action was quickly decided on. A bill, therefore, was prepared for the Legislature, which was in session from December 5, 1826, and a seemingly comprehensive Act was passed on February 17 following, designed "to confer upon His Majesty certain powers and authorities necessary to the making, maintaining, and using the Canal intended to be completed under His Majesty's direction, for connecting the waters of Lake Ontario with the River Ottawa, and for other purposes therein mentioned." The preamble left little doubt about the Province's view of the Canal. It was aimed at:

... affording a convenient Navigation for the Transport of Naval and Military Stores; and ... when completed, will tend most essentially to the security of this Province, by facilitating measures for its defence....

The Canal would also "promote its [the Province's] Agricultural and Commercial Interests." The Bill's salient features appeared to be all that By could have wished.

That the Officer employed ... to superintend the said Work, shall have full power and authority to explore the Country lying between Lake Ontario ... and the River Ottawa, and to enter into and upon the Lands or Grounds of, or belonging to, any person or persons ... and set out and ascertain such parts thereof as he shall think necessary ... for making the said Canal, Locks, Aqueducts, Tunnels, and all such other Improvements ... and also to bore, dig, cut, trench, remove, take, carry away, and lay earth, soil, clay, stone, rubbish, trees ... etc.

... and also, from time to time to alter the route of the said Canal, and to amend, repair, widen, or enlarge the same ... and also place, lay work, and manufacture the said materials on the grounds near to the place or places erected, repaired, or done ... and also, to make, set up, and appoint Drawing Boats, Barges, Vessels, or Rafts ... and do all other matters and things which he shall think necessary and convenient for the making, effecting, preserving, improving, completing, and using the said Canal, in pursuance and within the true meaning of this Act, doing as little damage as may be in the execution of the several powers to him hereby granted.

He was further:

... empowered to contract, compound, compromise, and agree with all other bodies politic ... [or] persons ... for the absolute surrender to His Majesty ... of so much of said Land as shall be required ... any Law, Statute, or Usage, to the contrary notwithstanding.

There were, of course, provisions for compensation, arbitration and further assessment:

... if before the completion of the Canal through the Lands of any person or persons, no voluntary agreement shall have been made as to the amount of compensation ... the Officer superintending the said Work shall, at any time after the completion of such portion of the Canal ... upon the notice or request ... of the Proprietor ... appoint an Arbitrator ...

If arbitration were not satisfactory, the jury hearing the owner's appeal was to include in its assessment:

... the benefit likely to accrue to such individual from the construction of the said Canal by its enhancing the value of his property or producing other advantages.

Other articles included penalties "if any person shall float any timber upon the said Canal, or shall suffer the over-loading of any boat or vessel ... to obstruct the passage ..." and provided for free passage for "owners and occupiers of any Lands adjoining the said Canal, to use any boats thereon for the purpose of husbandry, or for conveying cattle" from one farm to another. It was made explicit that: "All persons may use the Canal and towing paths."

By the time that this became law, other aspects of the situation had been changed for By. In August, the Ordnance Department had been asked to state "how much money we shall require to lay out on the communications in Canada in the Year 1827." This pressing matter was to be "decided if possible, before the [British] Cabinet shall meet on the 5th of next month." General Mann was instructed to seek General Smyth's co-operation in arriving at a likely sum. Smyth's ideas had clearly not changed in the slightest from the time his own report had been written in 1825. Stating that Parliament had granted £15,000 "towards the Canadian Canals" (and not the £25,000 envisaged) for 1826, Smyth reported that By "was permitted to expend" £5,000 (over \$20,000) of this, which was therefore to be



deducted from his £169,000 that was "The whole of the Estimate for the Rideau." Therefore, By had £146,000 left, and "if this amount is divided by 5 (being the number of years the operation will probably require) it appears that £32,800 is the sum which ought to be demanded for the Service of next summer."

Having given this advice which, as had been noticed, had hardly anything in common with the facts as By had been led to see them, Smyth less than two weeks later, also forwarded an opinion on the scale and use of the Canal suggested by By in his long and far-reaching report of July. Insisting again that the "great object & use of" the Rideau Canal was military, Smyth was convinced that "any additional size of Canal appears ... likely to cause a great additional expense without a corresponding benefit." Troops and stores would be able to move as rapidly on a 20-foot-wide canal as they could on a 50-foot one. Steamboats, he stated emphatically, were out of the question, perhaps even unlawful because of "the serious injury the Banks would receive by the undulation in the Water caused by the Steam." Furthermore, if the idea of using anything larger than a gunboat was to be seriously considered, "there can be no end to the proposed size of the Canal." In his opinion the "Craft of the Country," that might be incidental users of the Canal, certainly needed nothing wider than 20 feet.

Having entirely rejected By's argument, Smyth noted that "By's letter is dated from Montreal," by which he "presume[d]" that the Colonel "can hardly ... as yet have gone over the country between the Ottawa & Kingston." When he had done so, and:

... has completed the Plans Estimates & Surveys for this special service, in obedience to his instructions and ascertained the extent of embankment he will require at the Mud Lake [Newboro] to form a Reservoir as a Feeder for the Canal with Locks of 20 feet in breadth, he will be better able to judge not only of the propriety, but of the possibility & the expense of extending the dimensions.

In Smyth's judgement, there was little evidence "that Lt. Col. By has taken a judicious view of the Military Features of defences of Canada."

General Mann, instead of clarifying matters on the basis of discussions and correspondence that he had also had with By, merely reported for the Ordnance Board that "relative to the amount of Money that may be required ... Sir James Smyth's answer is herewith enclosed." And on the subject of "enlarging the dimensions of the Canals," although Mann thought "the Lt. Colonel's zeal is praiseworthy," he "did not fall in with his opinion either of the practicability or advantages of what he proposes." Not that he wished to censure By, for "the subject itself is of importance, and it is well that it should be considered in every point of view."

With Smyth's harsh judgment and Mann's concurrence ranged against By's plans, the immediate outcome was obvious. The Board accepted Smyth's financial calculations without comment in September, and also instructed Mann to communicate to By, through Durnford, the reasons given by Smyth for rejecting a steamboat navigation, and to "request[By] to proceed with activity to execute the Service upon which he is employed, without altering any part of the plan proposed." Accepting Mann's milder interpretation of By's intention, however, the Board would "be always happy to receive his observations upon any part of it & his suggestions," but in this case the Master General himself considered it "obvious that vessels propelled by Steam, cannot be used upon Canals, without injury, possibly to the



amount of destruction of their banks." Aside from that, the Board assumed that as By expected to construct his larger canal within five years, he could now have the one planned at 20 feet completed in four years!

It was not until three months later that this information was communicated to By. He appears not to have been perturbed by the diminished time period: "I feel confident," he wrote to General Mann, that "the Rideau Canal will be completed agreeably to my Instructions, on the scale of the La Chine & Grenville Canals in four years." The financial aspect, however, he was not willing to merely accept: "I have great doubts whether it can be performed for £169,000." He would give "a decided opinion" on costs when he had completed his surveys.

Sir James Smyth's offhand remarks were, on the other hand, not instructions but a challenge to his professional competence and, seizing the opportunity offered, By re-stated his case. "I regret extremely that Major General Sir J.C. Smith [sic] should for a moment conceive," he continued, "that I would have undertaken the construction of the Rideau Canal, had I felt as wanting in practical knowledge as I imagine he conceives I must be, from his remarks on my ... recommending a steam boat navigation." From Quebec City to Grenville on the Ottawa was a distance of 340 miles, only two miles of which--in the north passage around Montreal--would require a steamboat's having to be towed through a canal. On the Ottawa there would be several more miles of canal and, on the 133 miles length of the Rideau itself, "only about 20 miles of cutting," the remainder being "natural rivers and Lakes with strong banks, & of sufficient width to admit of a number of vessels passing each other at the same moment." Were these, in terms of total distance, short lengths of canal reason enough for "it to be supposed that steam boats will not be used?" On the contrary, suggested By, "the steam boat is better adapted for the navigation of such a water communication than any other vessel," and it was that fact that had led to his July recommendations, "not conceiving it could have been imagined, that I intended a steam boat should be allowed to work her paddles in the Canal." Unfortunately he had not previously gone into details on that subject, but would do so now. Sloops and schooners were "rapidly falling into disuse," and "a number of persons have consulted me on the practicability of constructing steam boats, whose paddles might work on each side of the Rudder & the Engine kept as far aft as possible," because "the advantage of a steam boat navigation" was obvious to persons on the spot. Such a boat, with no wheels on the side, "would not add to the width" required.

Referring then to the Macaulay Commission's report, By showed again that the potential commercial use of the Canal was far greater than Smyth was prepared to accept. "There is another point of view," the Commission had reported, "in which it [the Rideau Canal] claims our attention, as connected with a state of peace. In our intercourse with Lower Canada..." Trade was being carried on in scows and rafts "loaded with Flour, Potash, Staves, &c." and the custom was to have one Durham boat accompany five or six scows and rafts which were sold, together with the produce, when the merchant reached Montreal and Quebec. The Durham boat would then return alone with merchandise for Upper Canada. On the down journey, however, it was increasingly the case that the scows and rafts were, as By noted, "towed by steam boats through the still water and Lakes," and were made to shoot rapids when necessary. Clearly, therefore, there was ample reason for suggesting that "the Rideau Canal should be of sufficient dimensions to admit these Scows and Rafts," and By once again felt that "I should be neglecting my duty, if I did not still venture strongly to recommend, that the Locks on the Rideau Canal may be formed 50 feet wide, & 150 feet long, and only 5 feet deep, that

being the depth of the Grenville & La Chine Canals, and is quite sufficient for the lumber trade."

As an approximate guess he thought that £50,000 (over \$200,000) might be added to the cost by this improvement. The increased width would not have any effect on the amount that would have to be spent anyway on constructing a coffer dam at the junction of the Ottawa and Rideau, and waste weirs and the strength of the masonry would have to be the same, "provided the Altitudes are equal." And what a trifling amount this was, when "it is more than probable that the whole of the trade of Lakes Erie and Ontario, will have to pass through the Rideau Canal," and how much better it would be if "these locks should be capacious, in order to prevent the delays that will otherwise unavoidably occur." This was surely a point to be given serious consideration "not only in a mercantile, but in a military point of view, that every facility of movement should be afforded." Then again, he found it impossible to simply ignore "the repeated opinions of mercantile men concerned in the trade alluded to--to urge most respectfully that the Locks may be allowed to be constructed on the scale of the large dimensions, instead of 20 feet wide & 108 feet long, which they say are too short & narrow for their boats." By was at pains to stress that, General Smyth notwithstanding, it was not the depth that was in question. In an oblique aside he noted that it was only sloops (generally one-masted small warships, carrying up to 20 guns) that required "the additional depth ... that adds so enormously to the expense," and no matter what others might have had in mind, By had never considered that they might be used on the Canal. Therefore, he "perfectly agree[d] with Sir James' remark that the Tolls on the deep canal would not afford a corresponding advantage."

As for "Sir J. C. Smith's [sic] remark" that his "letter was dated from Montreal, & that I had no had time to examine the whole line," that was "perfectly correct," added By, because clearly it would "take me until this time next year, before I complete my researches" in the manner that a work of this nature demanded. That, however, did not prevent him from being informed, and what he had not seen at first hand himself he had discussed with Major Eliot and Samuel Clowes, "both of whom have repeatedly gone through the whole of the proposed line of the Rideau Canal, and are remarkably intelligent men." To "prevent a recurrence of such a remark," as Smyth had made, and particularly because this report too was dated from Montreal, By wished it to be known that he had just recently returned from the Rideau, where he had spent many weeks, and that he was then (the first week of December) "arranging for the first eleven Locks to be constructed" so that actual work could start in early spring. Furthermore, he intended returning to the Rideau to see to a number of practical tasks, as soon in January as the rivers would be sufficiently frozen to permit sleighing. Nothing he had yet encountered, he concluded for General Mann and the Board, with a dash of both optimism and daring, would "damp my most sanguine hope of completing the work ... even on my proposed scale of 50 feet wide Locks."

This report no doubt led the Ordnance Board in London to seriously consider that a tenable view markedly different from Sir James Smyth's existed. The realization, however, would take time to mature, and would require official investigation. But for the time being, and aided by time and distance, the Board avoided the discrepancies of fact and let By make what he could of his instructions. Early in 1827, however, before this report had been received, the Board, prompted by the necessity for action on the matter, did come to the conclusion that Smyth's recommendation of contract labour alone was not necessarily the best. By, it will be remembered, had asked for four companies of sappers to help in construction, and the Board, acknowledging Smyth's point that "it is obvious that in a country of



six months' winter ... that working establishments maintained during the whole year are very expensive," nevertheless also accepted the contrary view that, "in such a large undertaking, the rapid progress of the work, & its successful execution may, in a great degree, depend on affording the Engineer Officer in Charge, this means of effectual check and superintendence, and of performing certain parts of the works, such as the Locks, by persons of a class superior to those likely to be hired in the country." Soon after, the collective opinion of Mann and Smyth on the subject having been requested and received, the Board came to the conclusion that By would need two companies of sappers as a pool of skilled help.

In January, too, the question of land purchase was put on a more formal footing. Mann informed the Board that "no progress can be made in entering upon the Lands through which the Rideau Canal is intended to pass nor can any steps be taken towards the possession of other Grounds that have been pointed out as necessary," as long as the Colonial Office insisted on delaying official instructions to the civil Governors in Canada. This, he added, "may tend to advance the value of the Lands required." The Board, for once, acted with alacrity and informed the Secretary of State for the Colonies, Earl Bathurst:

... that the Master General and Board consider it very desirable that no time should be lost in issuing directions for the purchase of the Land required for the Line of the Canals.

Bathurst, the onus now on him, reacted equally quickly and, on February 7, wrote to Dalhousie:

... it is very desirable that no time should be lost in obtaining the Lands which may be required in Upper & Lower Canada for the Rideau Canal--I have to convey to Your Lordship the necessary authority for the purchase of the Land and I am to request that Your Lordship will afford every aid in your power to the Engineer Officers in carrying their instructions into effect.

By, since being relieved of direct responsibility for the larger and more complex administrative arrangements, was not immediately involved and it was left to Darling and Dalhousie's other aides to sort out the details of steering a practical course between the right hand of London and the left hand of Upper Canada. By was nonetheless fully occupied. From his drawing room and office in Montreal he contacted the local Deputy Commissary General, C. J. Forbes, and provided him with advance details so as to smooth the supply route for the time when operations would begin. From 1,500 to 2,000 daily rations (pork, flour and spirits) for the military and labourers would be required for the start, and until the Commissariat was completed on the Rideau side in mid-summer, a depot would be formed at Hull. For the time being also, a one-month supply of cash was to be kept on hand at Grenville, where there were more soldiers and fewer revellers.

These plans assumed that the bridge over the Ottawa would be built without complications. "[T]his Bridge," By told Dalhousie in January, 1827, "may fairly be considered a bridge of communication from Hull to the Rideau, and as the Saw Mill & Forge is in that village, the traffic will be very great ... , it [is] a first and essentially necessary preparative step to the Canal works on the Rideau." The "Inhabitants in the neighbourhood of Hull," however, "refused to furnish the Materials" for the bridge, as had apparently been agreed, and By had to make other arrangements with Philemon Wright.



Clearly, the sooner that By had his own storage space on the Rideau side, the less vulnerable he would be, and in January he went to Quebec City and met briefly with the Commissary General, Peter Turquand, who was very much aware of Dalhousie's "General Order No. 5 of the 30th. October last communicating the directions . . . that the Commissariat & all other Military Departments should afford every facility to the Officers of the Royal Engineers." With both Turquand and Forbes convinced that they should proceed "with the least delay possible . . . to prepare for the opening of the Navigation with Supplies and assistance to meet the wishes" of By, it was even agreed to take action "to meet certain cases not provided for in the Treasury Instructions."

For By, this meant first and foremost "building Magazines . . . by the 1st June," and therefore the immediate concluding of contracts by "irregular"--the word was Forbes'--procedures.

By had previously made work agreements with Philemon Wright and Bradish Billings, and in October, 1826, had contracted with Thomas McKay for masonry and other work to the extent of £633 (about \$3,000). He therefore saw no real reason now to enter into the long and tedious process of advertising for tenders, waiting the full length of time, and having the lowest accepted. In this he was supported by Durnford who, long before By had arrived in Canada, had disputed the principle of "the Lowest Tender" with Forbes in connection with another project. Forbes, on this occasion, vacillated to some extent.

By had drawn up plans and specifications for two store houses of 70 by 30 feet "in the clear." Word quickly got around and, hardly had advertisements gone out than tenders were received from McKay and a contemporary of his, John Drummond--the first being £880 per building and the second £905. McKay was not at the time in By's bestbooks (he had built the arch of the bridge that had collapsed at Hull), and "being informed that Drummond is an excellent Workman," By received his agreement, after they had discussed the matter with Forbes and a Colonel Hills, "to undertake one of the stores at the same price as McKay had proposed." Forbes then suggested a further "Condition, that when I receive tenders, should one of them prove lower than the Estimate he will give in, and . . . will consent to diminish his Price to that of the lowest." It would have to be from a "respectable Tradesman," added By, and both Drummond and McKay accepted these conditions as "meeting [By's] wishes, and very much assisting the Service by saving time."

Two officers of the Ordnance in Quebec City, Smith and Heathfield, objected to the procedure on principle when asked to confirm it. Wishing, however, to avoid placing in By's way obstructions (thereby contradicting Dalhousie's directive), they only recommended "that the offer of Messrs. McKay & Drummond . . . be sanctioned upon the immediate Cancelling of the advertizement," and otherwise contented themselves by putting on record their belief that this way of doing business "might tend to shake the faith of Individuals with Government and prevent those advantageous offers being made which it is our duty to endeavour to procure." Perhaps to counterbalance any argument that they were failing to comprehend the special circumstances of the Rideau project, several weeks later, in March, 1827, they approved of By's arrangements with Billings in the previous autumn, "which appears to have been a case of pressing emergency." For By, of course, so also was the building of his Commissariat.

But Forbes, with the example of Smith and Heathfield who were standing their ground more firmly than he had, was not so co-operative when contracts

were being considered for barracks and other buildings. In March, when the tenders were opened, By found that the lowest was "one third higher than I had estimated," and he refused to accept any of them. Forbes insisted that on the contrary, "we were obliged to take the lowest," but By was adamant. Several days later he received a new tender "from a respectable man named Nathaniel Chamberlain," who had previous military experience in building wharves and locks, "& as this man's tender was within my Estimate, & £400 under Mr. Mackay's [sic], which was the lowest offered, I took it to Mr. Forbes," who in turn would not be party to this "irregular" practice. This particular episode ended with By's re-drawing his specifications and advertising for tenders over again.

In April, when tenders were received for the first eight locks at the Ottawa, the issue came to a head. Once more the tenders were, said By, "considerably higher than my Estimate," and he was disappointed that "there was no one in Montreal, Kingston, or the neighbourhoods adjoining willing to undertake works on reasonable prices." This was particularly galling in view of the fact that "a Number of Americans [were] examining the route of the proposed Rideau Canal," and were pressing By to give them the promise of contracts at various places. The irony of this was less disturbing to By than it would have been, say, to General Smyth. Quite casually he asked General Darling if Dalhousie would "sanction my giving out such portion of the work as they are willing to take within my Estimate." The Governor had no objection to Americans performing such work as By might recommend, provided Forbes drew up standard contracts and, on By's suggestion, took "security for the full performance of the said works." But on the first eight locks in question, By initially refused all tenders, the lowest by McKay and John Redpath (well connected with banking and commerce in Montreal) being £3,000 (about \$14,000) above his estimate. For a second time a late tender was received, from an American, Walter Fenlon, and as it was precisely the cost that By had in mind, he first recommended that it be accepted. Overnight, however, he went carefully over the details "with different practical men," as a result of which he was "inclined to think our Estimate lower than it can be executed for." McKay, too, came to replead his case, and By relented when he also found that Fenlon was "an Excavator, and not a mason," and after McKay had lowered his estimate to one shilling and a penny-halfpenny (or two pence (say 4 cents) less than McKay's). Having already made his recommendation of Fenlon, By sent McKay to Quebec, to "plead his own cause" with Dalhousie and Durnford, but sending with him a memo explaining the details and "respectfully recommend[ing] the accepting of Mr. MacKay's [sic] last offer ... in preference to commencing the work with a man whose ability I know nothing of." The Governor chided By for bothering him with a routine matter--"no part of my business but lays with the Officers of Engineers"--but aware of the nature of the complication he continued that he had "no hesitation in saying that I am entirely of Col. By's opinion, "that McKay was "a sure man, to do excellent masonry," and that Fenlon was "an excavator only," and "a stranger, altogether to be distrusted."

That each contract was to be considered on its merits, of which the tender was only a part, was now firmly established.

Before leaving Montreal at the end of April, By created further consternation by attempting to arrange for the Commissariat to send a thousand "Sets of bedding" by a steamboat that left Lachine for Hull on the 23rd. The labourers waiting at Hull and the Rideau were spending their nights "with nothing but their rags to cover them," and By was concerned that with "their numbers increasing, and the rainy season coming on," there was bound to be sickness. This would be avoided by

giving them blankets "on equitable prices in preference to money," and by "easy Stoppages from their working pay."

Also he arranged with Governor Simpson of the Hudson's Bay Company for the loan of two birchbark canoes, each with five men, and for the services of officer Cowie of the Company, for a planned three weeks' survey of the Rideau. Being "ignorant of Canoeing," By had Cowie see to the fitting out and, through Durnford, hired Surveyor Sherwood of Brockville "to act as my guide & to point out the ground for 15 shillings [just less than \$3. 50] per day, with all his expences paid." Dalhousie, who was requested to authorize these unusual payments, retorted that the continual referrals were becoming tiresome:

I decline to enter upon any particular matters of this service, whatever requisitions of money or whatever assistance in my power to authorise shall be given on the demand of Colonel By--let him name the sums, & they shall be granted from the Commissariat.

That he had not the inclination to go into the details of every financial arrangement is understandable. As By left for the Rideau on April 27, the confirmed expenses apart from regular contracts totalled sixpence short of £2,428 (about \$11,000), and included such items as "excavating at the head of the Canal Valley to ascertain the nature of the Soil & rock" — £53; "Opening 5 Quarries (Well opened and in operation)" — £1,064; "Surveying and exploring the country to ascertain the proper route for the Canal" — £60; "For the Conveyance of Stores Artificers & Laboueres [sic], from Montreal to Hull" — £98; and so on, down to 18 shillings and sixpence for "Canvas for the Backs of Plans."





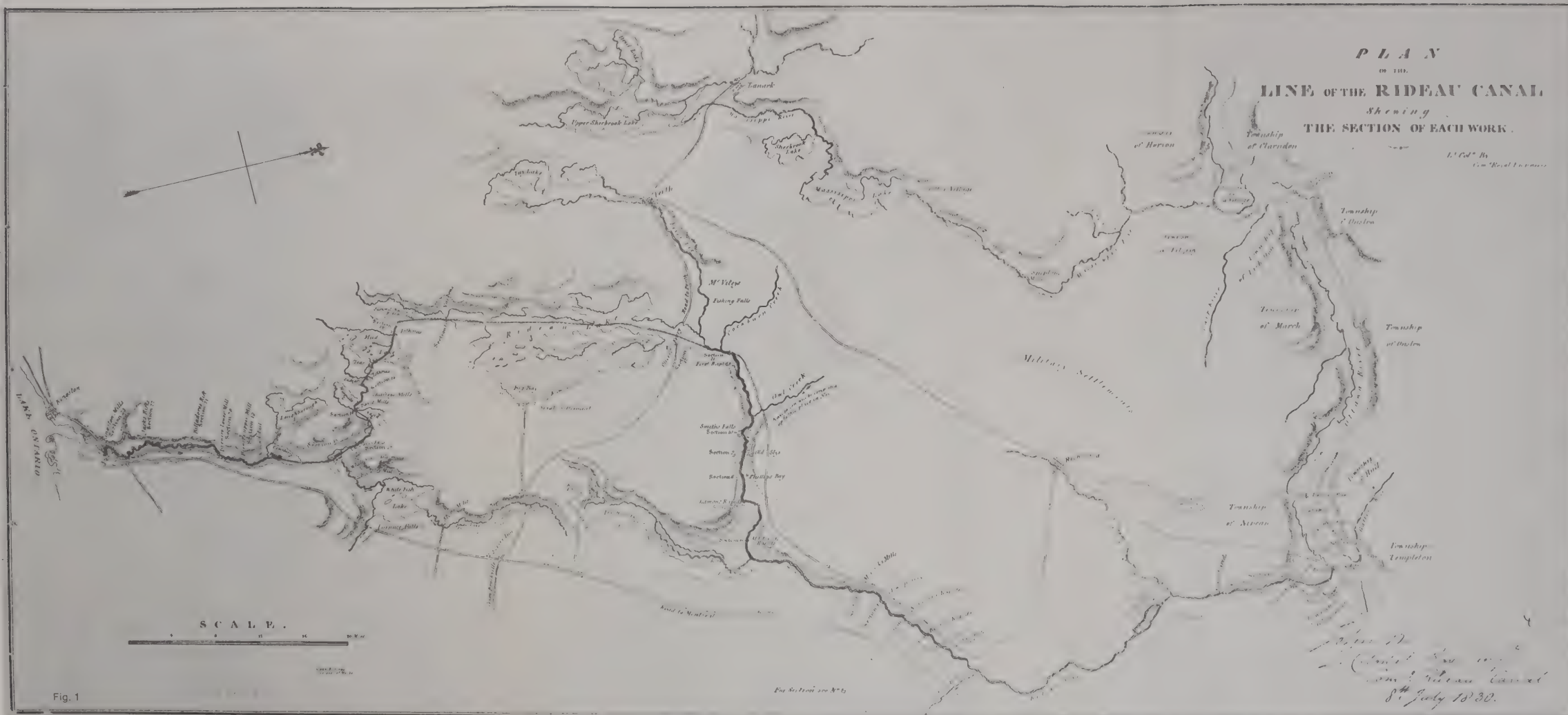


Fig. 1





## Chapter 4

### CONSTRUCTION TRIALS

The idea of taking off into the Rideau wilderness for up to three weeks was probably, for By, no more than a fond hope. The real scale of the work that he had undertaken, whatever might have been the hopes and desires of minimizing size, impressed him more and more as the days passed, and one of his last acts on leaving Montreal was to inform Colonel Durnford that he would require "a far greater number of persons to assist him" than the Duke of Wellington, as Master General of Ordnance, had ever officially agreed to provide. Durnford urged By to reconsider, but By insisted that his personnel would have "to be doubled" by the 1828 season and that he could not, therefore, now simply agree to what his superiors wished to hear. Besides, he had "conceived" that he had the authority to increase his staff from letters written by the Board and General Mann in April, 1826, in reply to one written by him in which he had said, "I should require permission to encrease the number of overseers of Works, as the service may require. "

Then, on May 4, the tenders for excavating five miles from the first eight locks to Dow's Great Swamp (Lake) and from there to Hogs Back, as well as for forming a water channel, constructing three locks of ten feet lift, and the 45 feet dam at Hogs Back, were opened, and By felt obliged to be present. This time the works "were all tendered for by a variety of persons," but Walter Fenlon's "being much under all others," By, despite what had happened previously, but undoubtedly on the grounds that the American was an excavator, gave him a two-year contract at a rate of elevenpence-halfpenny (just over 20 cents) a cubic foot. At the Ottawa, at the same time, a Mr. Pennyfeather started on the excavation for the first eight locks, promising to complete his work by August 1, 1827, but soon finding that "in consequence of the great number of springs which create an excess of Labour, & consequently some unavoidable delay," that he would require an extension of time.

These and other matters kept By from taking his canoes down the river until mid-May and necessitated his returning before the end of the month. He did so, however, in high spirits; "Nature," he said "has so strongly marked the proper positions for these various works that there can be but one opinion on that subject. " With the exception of the rapids, and existing portages where locks, waste weirs and channels were planned, he had found a five-foot depth of water throughout. As most of the land on the river banks was either low, and obviously flooded for some distance back in the spring, or high and rocky, towing paths (as included in Smyth's plan) were "impracticable" at best, and possible only by bridging with piles to overcome a "15 feet perpendicular every Spring, above their [the waters] common level at the Melting of the snow. " As well, with ice adhering to the piles, it was "more than probable" that bridges or causeways would be carried away by the floods. And, too, following towing paths around the shores of the Rideau Lakes "would nearly double the length of voyage," and any thought of "poling" could be forgotten because in many places the lakes had either a forty-foot depth of water or the same of soft mud, meaning that only oars or sails would be practicable.

Having set the scene, By then broached the subject of steamboat navigation from another angle. He hoped that the Master General and Board would "authorize me to build a Steam boat without delay," as one could be made that would go even through a 20-foot-wide lock at an expense of from £2,000 to £2,500 (in the region of \$10,000), and it would be of great use not only for carrying materials during construction but also "as a Tow-boat when the Works are open to the trade of the country. "

His persistence made some impression in England where, in the spring of 1827, there had been a change in Ordnance Board members and an apparent lessening of Sir James Smyth's considerable influence. With two changes of administration during the year, however, and with a third to follow in January, 1828, when the Duke of Wellington would become Prime Minister, government departments were more concerned with the examination of current expenses than with blithely extending their commitments, and for the time being the far-away Rideau Canal was not a priority item.

None of this affected By in any immediate way. He, together with his second in command, Captain Bolton, concentrated on the details of contract work while the few other junior officers whose assistance By had managed to obtain were employed in a number of places along the river. At the height of the summer, apart from the works being undertaken by McKay, Pennyfeather and Fenlon, By had a Mr. Henderson draining the swamps in the first several miles of the waterway, and also attempting to form a channel through Dow's Great Swamp by building an earth mound 1,128 feet long, apparently on the stumps of giant white pine. Farther down the river Fenlon was occupied with more excavation to the Hogs Back and, regardless of the questions raised earlier as to his building abilities, he was also charged with the construction of a dam "of arched key work, across the Rideau River 240 feet wide, perpendicular height 45 feet . . . to convert the first seven Miles of Shallow Rapids, into a sheet of still water." At Black Rapids, a Montreal mason, a Mr. Phillips, was quarrying rock with which to form a dam 280 feet wide by 10 feet high. Having a lock with the same lift, this dam was intended to add a further five miles of still water. To complete the first 40 miles of the Canal to Burritts, By planned three locks with an eight-foot lift each and--he was at first uncertain--either one dam of 24 feet and 158 feet wide, or three smaller ones at Long Island.

Towards the Kingston end, By had Lieutenant Frome of the Royal Engineers, Lieutenant Smith, an engineer of the Royal Artillery, and Ensign Wallace of the 71st Regiment, also an engineer, together with John MacTaggart, the Clerk of Works (who later claimed to have played an instrumental part in the laying out of the Canal but whose stories By discounted as "false assertions in his Work entitled '*Three Years' Residence in Canada*' ") and Thomas Burrowes, the Assistant Overseer of Works, all employed in planning and overseeing the details of the works. Elsewhere in between, engineer Lieutenants Pooley and Dennison, and Captain Victor of the Royal Engineers, but commanding a company of Royal Sappers and Miners, were similarly employed. For a time, too, By had the services of Colonel Durnford's son, Ensign Durnford of the Royal Engineers, but the Board and officers of Ordnance in London refused to go along with this arrangement. On August 16, 1827, the day that Captain John Franklin (the already well-known Arctic explorer, who was to lose his life in 1847 in his search for the Northwest Passage) laid the ceremonial first stone of the Canal, By wrote to London that his "only want" was "Officers & Money," and that if his officers were taken from him he would not "be answerable for the due performance of the various works." Within months the Board responded by disapproving of Smith's and Wallace's services having been obtained at all.

The first company of sappers and miners under Captain Victor arrived at the Rideau on June 10, enabling By "to commence operations in various parts" that would otherwise not have been possible. Initially they were set to work quarrying "Blocks of hard grey Lime Stone, granite, and sand stone," of such quality that By was convinced that nothing could prevent him from erecting "Works both durable and ornamental." Also they cleared tracts of land, mostly at the Ottawa end, so that some relief could be obtained from the plagues of mosquitoes that caused much fever during the summer of 1827 and were to be responsible for considerably more during the following years.





View of the Southern entrance for the Canal, prior to completion, with Kingston in the distance. Sketch by Thomas Burrowes, 1830. (Ontario Department of Public Records and Archives).





However, the Board was not altogether happy with having sent sappers and miners into the bush, chiefly because of the fear of desertions. By, hoping for three such companies, wrote reassuringly that he found Captain Victor's men "intelligent and well instructed" and that, besides, there were only two steamboats a week to Grenville, 60 miles away in the one direction, and impassable roads to Richmond, Perth, Brockville and Kingston in other directions. The water routes were "so intricate that guides are absolutely necessary," and the country itself was the "most difficult part in all the Canadas--from which men can desert," being "wilderness, cedar swamps, rapids & Lakes" apart from a few clearings whose inhabitants appeared to be "void of communication with the rest of the world."

Pointing out that his contracts had been "formed for Masonry at so much the Cubeyard," By added that there were a large number of contingencies that had not been provided for: piling and planking for foundations of the locks and weirs; constructing coffer dams, lock gates, sluices, bridges, culverts; placing pumps and laying drainage systems, and so on.

The "different Trades of the Sappers and Miners" would consequently all be "useful" to him. He had in mind "Smiths, Stone Cutters, Masons, Carpenters & wheel-wrights," all of them "equally valuable, and much required." But of the "greatest value" would be masons and miners specialized in arched key work not requiring mortar or cement of any kind. Not only was this form of work considerably less expensive than common masonry, but it would "Stand the Severe Effects of this Climate better." However, the Ordnance Board would not be moved on this matter. When it considered By's renewed request in the following winter, the outcome was a brusque communication to By to make such arrangements as he could but not to expect any more than the two companies of sappers and miners that were by then in Canada.

Nevertheless, in one way or another, the work progressed rapidly. A progress report for the fall of 1827 showed that £32,622 (say not far short of \$150,000) had been spent. The excavations for the first eight locks were two-thirds finished--heavy rains had prevented completion and had necessitated extra expense and labour in keeping the lock pit clear--a dam of 200 feet in ten feet of water at the first lock and the Ottawa had been built, an average five feet of side walls for the first locks had been finished, and three inverted arches of the foundations nearly so. Above the eighth lock a stone bridge of 57-foot span was being constructed and its abutments nearly completed. Buildings had multiplied--there were, in this first short distance, two stone storehouses of 70 by 30 feet and two stories high, one of them for the Engineer department and the other for the Commissariat, situated on either side of the Canal; three stone buildings of 108 by 70 feet, serving as military living quarters; a hospital of these dimensions and two stories high, for the use of civilians as well as military employed on the Canal; four log buildings for workshops and officers quarters; and two wooden barracks for civilians that included a butchery and a bakery. Several "extensive" quarries had been opened on either side of the entrance valley, and on the Hull side of the Ottawa, and cut stone for the first eight locks was prepared in them. For nearly half a mile from the eight locks there had been considerable excavation, and to Hogs Back the banks of the Canal had been cleared and the wood "logged, piled & burnt." The intended earth mound across Dow's Great Swamp had been started, and from the Ottawa to Long Island there were some fifty miles of "rough road."

At various places along the river, from and including Hogs Back, there were other "extensive" quarries in which stone was cut for the locks, Black Rapids, Long Island, Clowes', Smith's Falls, and Jones Falls. In each of these places

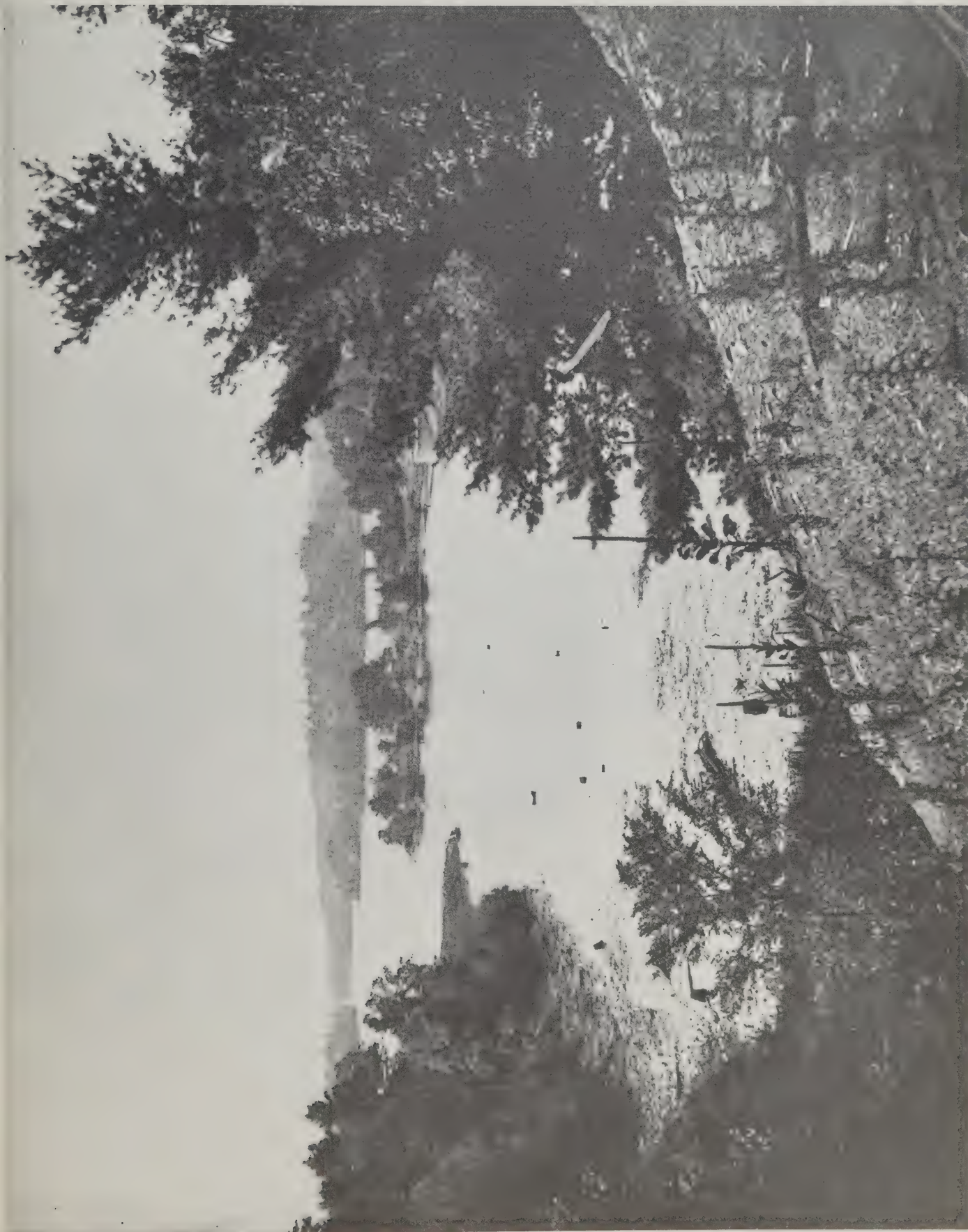
dams and excavations for locks were "in a forward state of Progress." During the summer and fall too, extensive clearings were made at the connecting points between Rideau, Mud (Newboro), Clear and Indian Lakes, and at Cranberry Marsh. When, however, from January 7 to 17, 1828, By went down the line of the Canal with engineer Captains Savage and Victor, he found that although the contractor in the Lakes' area, Hartwell, had effectively cleared and started his excavations, he did "not appear to have sufficient energy to carry on so extensive a work." By that time, at Cranberry, some eight miles of clearing remained to be done, but By was enthusiastic about the capabilities of his contractor there, Brewer, who had a large party of axemen and several yoke of oxen at work.

At the lower major works, considerable progress was also made by the turn of the year. At Kingston Mills, the contractor, Drummond, who was to build four locks, each of a nine feet lift, and a dam of 18 feet, had 20 stone cutters producing large quantities of cut stone with which to start the construction of the dam as soon as the spring floods would be over. At the next works up the Cataragui, contractor Clowes had been excavating and straightening "the natural river," and expected to complete a lock and dam of ten feet by the following September. At Jones' Falls, which vied with the entrance valley and the Hogs Back dam as the most magnificent work along the Canal, the contractors McKay and Redpath were to build a dam of 48 feet (which, noticed a committee of engineers in London, would dwarf that of 28 feet which the Americans had built on the Hudson) and six locks of ten feet two inches lift each. In preparation they had constructed buildings to house 200 men, as well as smiths' shops "and every other requisite," and 40 stone cutters were already fully occupied. At Smith's Falls, the contractors, Messrs. Rykerts and Company, had the projected 23-foot-high dam more than two-thirds completed, and side walls for the three locks of 11 feet 2 inches lift each "in a forward state." Nevertheless, there was to be a parting of the ways and legal issues raised between Rykerts and By. At Clowes' Quarry, though, James Clowes had started to build his dam "in so unworkmanlike a manner," that By broke his contract during the January, 1828, visit. Several other contractors--Lever at Davies' Mills, Thomson at Maitland's, White and Phillips at Long Island and Black Rapids, and Philemon Wright and Sons at Burritts and Dow's Great Swamp (taken over from Henderson)--were also then "proceeding rapidly." At Hogs Back, Fenlon had advanced his intended 45-foot-high dam to "about 36 feet... in most parts," which By hoped would be enough to withstand the spring floods.

But all this activity meant to By that the moment was approaching when he would be committed to the 20-foot locks by fact of construction as well as by order. In mid-November, 1827, having received no encouragement from his earlier pleas, he wrote to Colonel Durnford once again that: "It... appears absolutely necessary to have the large Lock." His other approaches having so far as he knew failed, he tried a novel one:

... a 24 Pounder (gun) weighing 53 cwt from Quebec to Kingston will not exceed £5 and will only require 22 hours to convey it from Quebec to Montreal by Steam boat, distance 180 Miles, 3 hours from Montreal to La Chine by Canal boat, distance 9 Miles; 8 hours from La Chine to Grenville by steamboat distance 60 Miles, 4 hours passing the Grenville Canal in a Canal Boat, distance 15 Miles; 8 hours from Grenville Canal to the Rideau Canal by Steam boat, distance 60 Miles, and 25 hours to pass through the Rideau Canal from Ottawa to Kingston, distance 133 Miles; provided the Locks of the Rideau Canal are made of sufficient size to pass steam boats.





Cranberry Lake, Jones Falls. A photograph taken several decades after the Canal's completion. (Public Archives of Canada).





If, on the other hand, they were "not of sufficient size," the passage would be both "uncertain" and would "take a very long time." An extra £50,000 (upwards of \$200,000) would make all the difference between a mere water communication and a magnificent canal that would permit "all Kinds of Stores" to be moved from Quebec to Kingston in only 77 hours at a cost of only £1. 3s. (just over \$5) a ton. With a hint of near desperation, he intimated that local people appreciated his argument even if the Board of Ordnance did not. On November 12, in fact, he had been "solicited . . . to give permission for a steam boat to run from Long Island to Colonel Burrets" in about twenty-seven miles of still water, to join up with the road that he had built from the Chaudiere to Long Island, so that he was "now more anxious than ever" to receive authority to make his own steamboat at the summit level on Rideau Lake. He added another military argument to the long list of military and commercial ones that he had previously sent: that Bytown was a natural depot--fitting in perfectly with the Duke of Wellington's memo on the subject in 1819--for the one million pounds' worth of military stores that were now lying relatively unprotected at Kingston. "I hope," he concluded to Durnford, "you will point out to the Board the great advantages to be derived by adopting the large lock, that I may receive my instructions before it is too late to alter."

Durnford, forwarding By's communication, was however more concerned with the Rideau estimates that soon followed. He would, in 1828, wrote By, require £100,000 (say approaching \$500,000), £5,000 for each of January, February, November and December, and £10,000 in each of the other months. Durnford thought "it my duty to forward it for the information of His Lordship the Commander of the Forces [Dalhousie]," for he could not "take upon myself to recommend at present, that more than the sum authorised last year . . . may be again provided by the Commissariat." The matter was passed to London with more than customary speed where it was immediately considered, as the Rideau expenses had become a matter of concern to the departments involved. General Mann, as Inspector General of Fortifications, was sympathetic. He, it will be remembered, had been the first one to tell By that his expenses would not be restricted to specific amounts and he requested that the Master General and Ordnance Board "give the Lieut. Colonel the earliest information, so that he may be apprised of the intentions of Government, and be prevented, as far as may be now possible, from incurring any expense beyond what it has been intended to grant . . . Lieut Colonel By," he explained, "at present ignorant of the view taken of his Estimate, is going on rapidly with the Work." As the New York Mail would be leaving on January 6 (it was then the 4th), he suggested that some sort of instructions, even if only restraining ones, be sent by it. This was done with alacrity the following day. By was told to follow established regulations of the Treasury and his activities were virtually suspended. By then a committee of engineers already had the Rideau under serious investigation.

It was at this juncture in time that By, not knowing that his earlier appeals, as well as his whole mode of operating and spending, were being reconsidered, made what must, in all the circumstances, be considered a lucky toss. What happened was that Drummond, the contractor at Kingston Mills, had reached an informal and amicable working arrangement with Commodore Barrie of the Navy, which had land and building rights there. Barrie had "rendered every assistance" to Drummond, and in the course of conversation with him had wondered why By should be building locks that only diminutive vessels would be able to use. The locks, said Barrie, should be 50 feet wide with 7-foot depth, otherwise they would be "too small to answer the desired object of assisting in the military defence of the Country," and he would write to "Government" and tell them so.



Drummond lost no time in repeating this piece of intelligence to By who, understandably, appears then to have been almost beside himself with joy. On December 10, 1827, he wrote two long letters: one to Barrie and, taking the bull by the horns, the other to Sir James Smyth. Insisting still on addressing him as "Sir J. C. Smith," By explained that he had "just been informed" by Commodore Barrie that "the small locks will be of no use to him," and (the emphasis is By's) "he wishes to have the large Lock and 7 feet depth of water." Anticipating any charge of collusion with Barrie, By continued that the Commodore "is anxious to see or hear from me before he writes to Government on the subject, but as I have not yet seen, or had any correspondence with him ... I take the liberty of troubling you ... to save time, and will write to General Mann, as soon as I have had communication with the Commodore." It was in the hope "that through your influence I shall receive orders to construct the 50-foot wide Lock" that By had not on this occasion communicated through the regular chain of command. It was not a personal favour that he wanted, but a canal "that would meet the wishes of all parties, and is certainly the best for the Country." He had come to realize increasingly that the Ottawa would be the ideal place to build ships in time of war for service on the Lakes (By was of course aware that Smyth needed to be convinced by military reasons), and as the steamboats "that navigate Lake Ontario are from 46 to 48 feet wide," it was clear that everybody would benefit once it was admitted that it was "absolutely necessary to have a great breadth of beam." Then with an adroit sidestep to remove the onus from himself, he continued that "Commodore Barrie wishing to have a 7-foot depth of water will cause a further increase of expense, but not so much as might be imagined," because the additional two feet would only drown waste lands that were anyway, often heavily flooded, and turning swamp to lake would also help "banish fever & ague." As a final touch he added his example of the 24 pounder iron gun, which would cost only £ 5 to transport from Quebec to Kingston if the larger locks were built, and which "last war cost near £200 ... this fact I trust will have great weight with you in favour of Steam boats."

In his letter to Barrie, By asked no favours but instead confirmed a number of points for the Commodore's information. He understood that it was Barrie's opinion "that the lock of 20 feet wide which I am ordered to build, is too small to answer the desired object of assisting in the military defence of the Country," and he had "taken the liberty of sending this information to Sir J. C. Smith" because he was "extremely anxious to receive immediate permission to build the Locks 50 feet wide, 150 feet long, and 7-feet depth of water." Reiterating the military reasons--Barrie after all was the senior officer in Canada of the senior fighting service--By was also at pains to emphasize that:

The trade of this Country employing a greater number of Steam boats than would be required to move an army of 2,000 Men, it appears an act of madness to construct Locks so small that this most valuable power would be rendered useless in time of war; for if the above mentioned water communications are found of sufficient size to pass these steam boats, it would be the means of securing to England the trade of that extensive country on the borders of the Lakes.

This time By added a refinement to the argument, calculated to make a Navy man ponder long and hard: such trade would, it seemed plain, "be conveyed to foreign markets in British Vessels." Finally he refuted in advance any conception of the Canal being vulnerable to water turbulence caused by steamboat paddles:

... floods occasioned by the melting of the snow in the spring of the year have removed all soft substance from the banks of the Rideau Canal, consequently the dread of destroying the Canal banks by the working of the paddles of Steam boats is erroneous.

That of course was a reply to one of Sir James Smyth's main points.

By was in Montreal for the end of the year, where he was able to see and hear at first hand some of the comment that his Canal was exciting. One pamphlet, signed simply XYZ, which was on sale at Egerton's, military booksellers, particularly incensed him because it had been written with the help of some inside information and, with its half-truths, was calculated "to mislead the public." It, however, gave By the opportunity to advance his case again with Commodore Barrie, and he forwarded the pamphlet to him from Montreal on January 2, 1828, remarking that it had been:

... written by some person perfectly ingorant of the immense supply of water from the Rideau and the Lakes connected with that work ... falsely stating that the water communication ... can be completed with Locks of 108 feet long by 20 wide with 10 feet water for £169,000, where as the fact is, that with only five feet water it cannot be effected for less than £474,899.

Calling the Canal "a mere ditch"--as the pamphlet had done--was, he suggested, not only "absurd," but an insult "to the Common sense of every one, which will condemn the man, who by false Statements, is endeavouring to lead the country into error."

Having armed the Commodore with the facts as he saw them, By could sit back to wait developments which were not long in coming. Within days Barrie wrote to the Lord High Admiral in London, "strongly recommend[ing] the large Lock," and By, on his return from his ten-day inspection trip of the Canal in mid-January, wrote to General Mann, informing him of the fact and adding that: "it did not appear that he [Barrie] thought 7 feet depth of water absolutely necessary."

Meanwhile, things were happening in London.

The Duke of Wellington, who in March, 1827, had "entirely agree[d] in opinion with M. Genl. Sir James. C. Smyth that there is no necessity for ordering any alteration in ... the dimensions of the Canal," became Prime Minister in January, 1828, when Lord Goderich resigned the position, nominally on the question of appointing a finance committee chairman. William Huskisson, who had a long reputation as an enlightened statesman in commercial and colonial matters, was Secretary of State for War and the Colonies, and therefore responsible for introducing the Rideau estimates into Parliament. In early December, 1827, he requested "to be furnished with certain information upon the subject" of the Rideau Canal--By's estimates clearly did not jibe with those of the Duke and Smyth--and on the first day of 1828 the Ordnance Board received "a Memorandum on the subject of this Work ... from the Duke of Wellington" regarding decisions taken during the time he had been head of the Ordnance. The story is a complicated one involving British politics and personalities over a period of some years, that cannot be told here. Friction between the two statesmen, over a number of issues, eventually resulted in Huskisson's resignation from Wellington's Cabinet in the following spring of 1828.



In December, 1827, therefore, Huskisson was not in a mood to forgive sins of omission and, with the considerable official and political weight that he then carried, he insisted that the whole subject of the Rideau Canal be investigated in the shortest possible time, with a view to either having it continued on a realistic basis or scrapping it entirely.

As a first measure, the committee of Ordnance engineers already mentioned was convened to examine various technical aspects under a number of specific headings. The committee, composed of Major General Sir Alexander Bryce, Colonels John Jones and Edward Fanshawe, and, as a last-minute appointee, General Sir James Smyth, met for most of January and produced a lengthy report which was later condensed into at least two variations that appear to have been responsible for false historical evaluations of what they actually did recommend.

The first specific instruction was to give an "opinion upon the Plan proposed by Lt. Colonel By, of effecting the Water Communication from the Ottawa to Kingston, in all its details, especially as to the practicability, economy, and safety of the Dams, which the Lieut. Colonel proposes throwing across the River, and thus rendering the small Falls into still Water." The committee found little wrong with the line of route chosen by By, which was to all intents and purposes the same as that recommended in Clowes' and Smyth's reports of several years previous to this. By's suggested dams were, according to the knowledge and experience of the time, more controversial. But the eventual opinion was that his proposals "for easing the waters in the rapids" were "by no means a novel expedient, having been practised both in the Old and New Hemispheres under the more usual denomination of waste weirs." The height of some of By's dams bothered the committee more. As "a general principle" they agreed that "there does not appear to us to be any objection to the use of high Dams, which is not also applicable to low, both obstructing the Navigation of the River" as compared to cuttings. But, they felt, "a High Dam" would be so expensive to repair and would interrupt navigation for so long a time in the event that it failed, that it should only "be used when local circumstances render it absolutely necessary." That much said, and with more general guidelines for the engineer in charge, they placed the onus upon him as to whether or not the unprecedentedly high dams at Jones Falls and Hogs Back should be carried through as envisaged.

The committee's second instruction was to "give an opinion, and report upon the amount, and upon all the details of expence [sic] of the Estimate transmitted by Lt. Colonel By, and whether any less expensive mode of effecting the object in view can be devised." After having "very carefully examined & analyzed every part of Lt. Colonel By's Estimate that could be compared with the Surveys of the Ground, & the designs," they reported that in their opinion the estimates had on the whole been prepared "with much care, and accuracy." Nevertheless, they recommended that consideration be given to reducing by one foot the thickness of the side walls.

By other changes in estimates, the figure for the side walls was reduced to give a saving of one-eighth in masonry costs. That apart, the only other sizeable saving that they could suggest--of about £9,000--was in confining works on the Cataraqui River above Kingston to the "cutting of a straight Channel . . . [and the] cutting off some of the principal elbows of the River." This cheaper alternative, they admitted, would make for a larger route.

These were, however, relatively minor adjustments, and hardly brought the committee near to the £169,000, itself based on Clowes' estimate of £145,000,



which had been the original estimate for the Canal and the basis for the decision to proceed with construction. The committee, aware that this was the cardinal point, emphasized that Clowes had provided "no general Plan, or particular Plans of Locks . . . nor any prices for his Masonry or Carpenters' Work, nor any Sections or borings," so that his recommendations inevitably lacked the accuracy of By's detailed plans:

... after allowing Mr. Clowes much credit for skill, & industry, in exploring and marking the best general line for effecting this Water Communication under many difficulties occasioned by the state of the Country, and with probably little professional assistance, his Estimate for executing the necessary work is quite inadequate, and with his report are rather calculated to show the practicability of the measure than to give an accurate calculation of the expence [sic] of effecting it.

The question "whether any less expensive mode of effecting the object in view can be devised?" was interpreted by the committee as separate from their analysis of By's estimates. Their resulting suggestion, and not recommendation as such, has given rise to much misunderstanding. A "mode might be found," three of the four members agreed, "of keeping down the present expense . . . (tho' it certainly would not be ultimately economical) by executing those Locks of the Canal not yet begun, in Wood instead of Masonry." The 11 locks already under construction they did not intend to change, but the remaining 36 "might therefore be of wood." The price of timber, and the skilled workmanship available in Canada, led them to believe that wooden locks could be made for one-third of the cost of stone, for a saving that "nothing but weighty financial considerations would sanction," and then only as "a temporary expedient."

That the three members--Bryce, Jones and Fanshawe--had other reasons for this suggestion, became clear in the rest of the report. On "this question of the Locks of enlarged dimensions proposed by Lt. Colonel By, on which we are by the third head of Our Instructions desired to report," they pointed out that By had shown "considerable advantage as regards both Commerce and Military operations," to be gained from a 50-foot navigation. If this were to be done, an additional £50,000 would be required for locks not yet begun, and £3,000 for those in progress. On the other hand, if the remaining locks were constructed at the planned 20-foot width, but in wood, there would be "a present saving," as well as:

... the advantage of Leaving open for future decision this important question of the enlarged Steam Navigation, as the Construction of 36 Locks in Wood could only be temporary, to be replaced hereafter by Locks in Stone, of whatever dimensions should then be found most eligible.

Stone locks of 50-foot width might, at the time of their reporting, they thought, "be beyond the financial means of the two Countries [Britain and the Canadas] to execute." Their suggestion of wooden locks was not, therefore, all things considered, an unconstructive one. Master General Bryce in fact anticipated criticism, and received it in committee from General Smyth. In a letter of January 23 to General Mann, Bryce emphasized that "they have not, nor did they intend, to recommend the adoption of Wooden Locks in preference to Stone." Instead, it was the "present expedient" that made the possibility attractive. Smyth, notwithstanding, would have none of it. He, of course, had long been wedded to the purely

military route, at the 20-foot width, and submitted a minority report in which he stated that "from Local knowledge" he was convinced that a commercial waterway would be "too gigantic, & expensive an undertaking ever seriously to be thought of."

As a final instruction, the committee was to "report whether Lt. Col. By has not lost sight entirely of the Plan and Estimate for the Work . . . and whether Lt. Col. By was not repeatedly referred to these Plans and Estimates and positively ordered to adhere to them." In view of their previous considerations, the committee plainly thought otherwise. By "appears to have been guided by a desire to effect the object in the most judicious, and beneficial manner," and in the committee's opinion "he has strictly followed the dimensions of the Canal . . . [as] ordered by the Master General," and his "great doubts whether the work could be performed for £169,000" was reflected in "our opinion on the inadequacy of that amount."

Meanwhile, Huskisson, in accordance with his original intention, had not waited for this report before setting in step his own enquiries to be conducted through his subordinate colonial administrators in Canada. On January 2, he informed Dalhousie that the committee of engineers was sitting, that when their report was received, "a Commission will be sent out to examine into all the details upon the Spot," and that for the time being By was "to suspend all such operations as are not absolutely necessary to be carried into immediate execution." As head of the commission, Huskisson selected Sir James Kempt, a senior military man and colonial official, who was then Lieutenant-Governor of Nova Scotia.

The order for the virtual suspension of activity on the Canal reached By at Montreal several weeks later, by way of a letter from General Mann of January 5. It allowed little enough room for manoeuvre, but By took what he could. As it was "intended I should press the work to the utmost of my ability," he replied, the contracts for the construction of the locks and dams, as well as the "clearing, grubbing and excavating," had been made a matter of priority and consequently had been "accepted and closed by the Deputy Commissary at Montreal on the 1st Feby," before the new orders arrived, so that it was no longer "in my power to limit the expenditure." By did promise to make "every reduction in my power."

He started by dismissing all his "Civil carpenters, Smiths, Labourers and Squad Masters," and requested a number of the contractors to prolong the period for the completion of their works and to limit expenditures at present. This, however, the contractors were not willing to do, particularly the Americans among them, for they had the "Idea that the quicker they do the work the greater their profit." His great fear, wrote By to Mann, was that he would be sued for damages.

When this information reached Lord Beresford, the head of the Ordnance, in mid-March, he confronted Huskisson with it and warned him that "we can only be liberated from those engagements (I speak of those made by Feby. last) by very onerous concessions, which would be a dead loss." By's expenditures for the year were likely to be in the region of £140,000, as compared to the £41,000 that Huskisson had authorized, and Beresford was adamant that: "There is certainly no time to be lost, in coming to a decision on this important question."

For his part, Beresford was sending immediately to Canada, Lieutenant-Colonels Fanshawe (who had been a member of the January committee of Engineers) and Lewis (who had not) as appointees to Kempt's commission, and he asked for a copy of Huskisson's instructions to Kempt, whom he assumed was proceeding from Halifax to the Rideau "without delay."



Huskisson, master diplomatist that he was, turned the barb in his own time, nearly two weeks later. The engineers' report on the Rideau Canal proved:

... clearly that the completion of that important work, upon a scale of sufficient magnitude to render it available for the objects in view, cannot be carried into effect without a greater outlay than was at first anticipated, and that the Original Survey, and Report of the Civil Engineer employed in Canada were either founded on very erroneous notions ... or, as it has since been estimated, made out from the reprehensible motive of endeavouring to benefit the Colony by embarking His Majesty's Government in this undertaking, upon the faith of an Estimate, which the Author of it considered to be fallacious, and inadequate.

That, as has been seen, had not been Clowes' intention. The intermediary between the report and the decision to proceed with construction, had been Sir James Smyth, but Huskisson's riposte had the effect of laying the blame where he no doubt wished to put it--on the department of the Ordnance. The Ordnance, too, was responsible for By, and he had "felt himself at Liberty before his encreased [sic] Estimates had been considered ... to Conclude Contracts ... on the present very extensive scale ... involving so large an expenditure of the public Money without waiting for specific Authority. "

Having absolved himself from the responsibility for any of the "onorous concessions" that Beresford had referred to, Huskisson then, with one of the turns of mood--undoubtedly calculated--for which he was well-known, stated that "so many reasons appear to combine in favour of the plan" envisaged by By, that "I am not disposed to withhold the sanction of the Government to the prosecution of the work, on the scale recommended by him." Commodore Barrie's support of By was also known by this time. The only proviso that he would make would be that Kempt's investigating commission "concur in the expediency of the measures proposed ... by Lieut. Col. 1. [sic] By for the furtherance of this Great Work. "

From the merely affirmative, Huskisson then passed to the constructively positive. From the advice of all those in Britain who were competent to decide on such matters, he had come to the conclusion:

... that the national advantages which are held out by adapting the Canal to the reception of Steam Boats, which can only be done by increasing the dimensions of the Locks, will far counterbalance the additional expence [sic] to be incurred ... both in a military & commercial point of view.

Consequently, Kempt's commission was to pay "particular attention" to By's recommended 50-foot locks, and if they agreed that these could be built for the additional £53,000 suggested by him, then authorization was to be given for this width or "any intermediate size" serving the same purpose.

For the current year, Huskisson would apply to Parliament for a sum of £120,000 which would cover By's actual commitments, and would leave to "future consideration" the annual allotment during the more than three years that it would obviously take for the Canal to be built.



Huskisson left to Beresford all "matters of professional detail" having to do with the Kempt commission--"it will be for Yr. Department to issue such Instructions, as may be considered expedient, with a view to the more complete fulfilment of the important object in view." For himself, he asked the commission to keep in mind simply:

... the importance of the object for which they are sent out, both as regards future defence, and facility of communication points so nearly connected with the safety, & prosperity of H. M. Canadians [sic] Possessions ... the great interest of the Colony, ... the Local circumstances of the Country, &, above all, ... a due attention to that economy of the public money, which is, in all cases, so necessary.

This sudden change in fortune momentarily delayed the departure of Colonels Fanshawe and Lewis to New York by the Liverpool Packet until the end of March, 1828. They would remain in London while instructions were prepared for them. These instructions were drawn up by Beresford and General Mann (as Inspector General of Fortifications) with particular reference to a number of documents that included the Duke of Wellington's memo of December 29, 1827; Huskisson's confidential letter to Sir James Kempt of January 5, 1828, as well as an official one of March 6, 1828; the correspondence between Huskisson and Beresford that has been considered above; the Ordnance engineers' report of January, 1828; Admiralty correspondence that resulted from By's initiative in seeking Commodore Barrie's collaboration, and a number of By's specific plans and estimates. These documents for the most part, of course, favoured By's position.

In addition, Beresford provided instructions more in keeping with the traditional, military role of the Ordnance. Unless there were very strong reasons against it, the Commission was to see that the Canal "be carried on the left bank of the Rideau River and on the right Bank of the Waters running into Lake Ontario," so that it would be on the opposite bank to where an invading American army would be expected to approach. The members were also "to make themselves thoroughly acquainted" with the whole area between the St. Lawrence and the Canal (a tall order indeed!) and to make detailed suggestions for its defence. They were to make similar recommendations for the defence of the larger territory from the Ottawa to the St. Lawrence, and to consider to what extent the Rideau could serve as "a Barrier" to an invader. Having done this, they were to "inform themselves similarly" on the Richelieu-Lake Champlain-St. Lawrence territory, and then to give thought to a road from Quebec to New Brunswick along the east shore of Lake Temiscouata. Defensive measures aside, they were to consider the feasibility of enlarging the Ottawa navigation at some future time, to conform with possible larger locks on the Rideau. After a quick visit to the Niagara region to make other recommendations, Colonels Fanshawe and Lewis (representing two-thirds of the commission) were then to be back in "England in the Autumn of the present year."

Such herculean and specific duties inevitably weighed more heavily with the commission than Huskisson's general suggestions to think of "the great interests of the Colony," and "the local circumstances of the country," in a commercial sense as well. Huskisson, too, in his final weeks as Secretary of State for War and the Colonies, had other thoughts on his mind than the Rideau. In March, when his secretary asked the Commander of the Forces "to convey the necessary Instructions to Sir James Kempt to proceed to Canada" to join the other two members of the commission, he remarked that Kempt "has already been prepared by Mr. Huskisson." In accordance with the procedures of the day, Kempt would normally have expected to receive instructions in addition to the first explanatory letter and

then the formal order "to act as President of a Commission appointed to report upon the Water Communication now carrying on in that Country under the direction of Lt. Colonel By." But by May 29, Huskisson had gone from his post. Kempt left Pictou for Quebec on May 20 and arrived at Montreal after Fanshawe and Lewis, at which time he had, as he later informed Dalhousie, "received no specific Instructions myself from His Majesty's Secretary of State for the performance of this Service," and he therefore used the Colonels' instructions from the Board of Ordnance as a guide.

By, of course, could not know of the shifts in fortune to which his plans had been subjected. In May he wrote to Mann that there would be "no means of carrying on the Service this Season," and all his efforts to restrain the contractors were having no effect at all. When the little money available was paid to them, and they could see that no more was forthcoming, they would certainly sue for breach of contract, "thereby increasing the ultimate expense, and placing me in a very unpleasant & distressing situation." At the same time, with Dalhousie, By was not so pessimistic, stating that "the only difficulty I have to contend with" was this matter of funds, delay and contracts, and that although there had been some damage to the Hogs Back dam, "it is nothing more than such works are liable to during their construction, and is fully provided for in the contingency." In fact, he was proceeding with the dam, and entertained "no doubts of its being completed this season."

Amid these and other monetary difficulties, including those produced then and later by the various agents of the Commissary (who continuously questioned By's actions and wrote regularly to England about them), and even by his own paymaster Rudyard, the arrival of the commission in June was a welcome event that became even more so when By heard that the size of locks was to be reconsidered.

During June, By took the commissioners over the whole route of the Canal and provided them with every detail of his plans and estimates. There was one unfortunate incident on June 21 when John McTaggart, the Clerk of Works for the Canal (the most senior of the civilian positions) refused to accompany the party to Kingston, was examined by the resident surgeon and declared to be drunk, with the result that he was dismissed and ordered to England. McTaggart claimed to have been sick, and almost had this declared the case, but eventually he settled for writing a book on the Canal and the country. By dismissed the book as fiction for the most part — particularly in its account of McTaggart's own supposedly major role in planning and executing the works — and said that he believed McTaggart to have been a habitual drunkard. McTaggart's book nevertheless has been extensively used by later historians. By's opinion of it does not appear to be widely known.

Perhaps the incident helped the commission to maintain the detachment necessary to an investigating body, that a shared life along the river and at camp at night, might have gone some way to dispel. By certainly did not get all that he had asked for. On July 3rd, Kempt wrote that:

The Committee are of the opinion that the whole back water communication should be completed with 5 feet depth of water, and the Locks uniformly adapted for the passage of Steam Boats 30 feet wide over the Paddle Boxes, and for Spars 180 feet long clear of opening the Gates.



That in turn meant locks of 33-foot width instead of the 50 feet that By had pressed for, and the commission made it clear that this had seemed to them the compromise choice between sacrificing all the work completed and money expended on the one hand, and involving the British government in an extraordinarily expensive undertaking on the other. By had submitted to them estimates for locks 20 feet by 108 feet at £544,676; 33 by 134 feet, adopted by them, at £576,757, and the 50-by-150-foot locks favoured by him, at £597,676. The difference in cost between the latter two had appeared sufficiently large to invoke the principle "not unnecessarily to involve the Mother Country farther into an extent of expenditure little contemplated in the outset." But at the same time they had agreed with By that the smaller 20-foot locks were not going to admit the type of traffic likely to want to use the Canal. Therefore, the "most practicable means of adapting the Navigation for all probably Naval and Military purposes, and for the Commercial uses of the Upper Country," made the 33-foot lock the logical choice.

Additionally, they had "felt it their duty to give Lt. Colonel By Instructions for his future guidance," and a "strict observance" of these, they hoped, would be "productive of more system and regularity than has been hitherto observed." For 1828, they permitted him expenditures of £105,000, and cautioned him "in the clearest manner against undertaking any further works until those already in progress are sufficiently advanced to enable you to appropriate Funds for other parts." There was to be no "deviation from the Original mode" of placing sluices and gates, and the greatest care was to be taken in the abutments of dams. Allowing that By was working "through an uncleared Country," and had not therefore "been used to practice that degree of regularity & Vigilant superintendence by executive Professional Officers which is indispensable," the Committee informed him that from now on he was nevertheless to have his officers and professional civilians distributed throughout the Canal, so that every part of it would have a daily inspection that was to be recorded in a diary. Finally, the lock-masters' houses were to be constructed as "defensible Guard houses & a protection to the Locks and Dams," and Bytown, in accordance with a general recommendation first made some time before by the Duke of Wellington, was to be made a depot for some five thousand men.

Therefore, although far from being a triumph from By's point of view, the commission's report did establish that the Canal was to be built as a steamboat route and consequently with commercial as well as military uses. As well, it cleared the way for By to proceed with construction, and made his finances manageable again; although in view of his engineer's view of a contingency fund, with the exceptional costs which kept recurring time after time and with differing interpretations of what was permissible and when, the Canal's financing was to plague By during the rest of his time in Canada and even after his return to England.

For the time being, however, By was content to reassure Kempt, at the end of June, 1828, "that every exertion shall be made to carry your instructions into effect with the greatest economy."

Fanshawe and Lewis departed on their other duties, but when Kempt prepared to do the same in July, he learned that he was to replace Dalhousie as head of the forces and government in Canada. As acting Governor from early September, Kempt remained in the province for just over two years, during the time that much of the construction of the Canal was done.

With one crisis out of the way, By had not even breathing space before fresh ones appeared. He found his contractors being successfully sued for trespass and cutting timber on private land (apparently on the grounds that the provincial act made no mention of By's being able to delegate his authority to private contractors),





Repairs at Lock 38, Davis, above Jones Falls, during the decade after completion (top), and Kingston Mills in use at a slightly later date (bottom). Sketches by Thomas Burrowes, 1843-44 and circa 1850. (Ontario Department of Public Records and Archives).







and then sickness along the whole line of the Canal brought many of the works to a virtual standstill.

A large number of those who fell sick, both of malarial fever and smallpox, were not on By's books as skilled workers or labourers. Nor were they employed by the contractors who did their own hiring. They were, as By wrote to England in September, poverty-stricken, generally Irish immigrants, day labourers, who had been "collected in consequence of that [Canal] work; and were thrown out of employment owing to the restriction of my expenditure." The resident surgeon (in today's terms a general medical practitioner), Tuthill, journeyed continuously up and down the Canal, using his own medical supplies when his patients did not qualify under the Ordnance rules. In June, By sent to Montreal for smallpox vaccine, and in the weeks that followed, Tuthill vaccinated more than five hundred "of the poor labourers children" in addition to doing what he could for those incapacitated by what was known from Bytown to Kingston as "the swamp fever" (malaria). Eventually, although it took more than a year, Tuthill was remunerated for the exceptional services and medicines that he had supplied at his own expense and, due to By's exhortations, it was agreed in London that labourers should be given "both their sustenance, and Medical treatment . . . which is dictated by humanity."

Towards the end of the summer, By sent one of his assistants, Captain Savage, down the Canal to make an accounting of the damage caused by sickness. In early September, Savage reported that "the Progress . . . has been considerably retarded and in some places entirely stopped," particularly near to Kingston. At Kingston Mills, Lieutenant Briscoe, the military engineer who was supervising the works, the assistant overseer, the contractor, his clerk and foreman, and nearly all of his one hundred labourers, had been unable to work and 13 men had subsequently died. At Brewers Mills there was complete inactivity. At Chaffeys Mills the contractor, Haggart, was unable to supervise the few of his men who were not sick, and there was a similar situation at Davis's Mills. At Jones Falls the contractor, the assistant overseer, two clerks and all but a handful of the labourers were "laid up with the fever and ague," and there was only a little work going on at the quarry. The next two contractors up the line had only four men working between them, and from Rideau Lake to Bytown three more contractors and a substantial number of men had taken to their beds, although in this stretch there was less sickness and construction had not been entirely interrupted with the result that "some good progress had been made."

With the advent of cooler weather there were indications that sickness was decreasing, but Savage felt "that little progress can now be expected to be made . . . this season."

By, optimist and shrewd tactician that he was, nevertheless felt that the summer's work could still be shown to advantage. On September 20, he wrote to Kempt that the fever was subsiding, and invited him to "honor the Works at this (Ottawa) end of the line of Canal, by inspecting them this Autumn," thus seeing for himself the progress that had been made since early summer.

By was especially pleased with the great dam at the Hogs Back which was then "nearly in a state to attempt to turn the water." The closing of the opening in October was intended as one of the events of the year. But the river once again failed to co-operate and, on November 11, By had to inform Kempt that:



... in consequence of the sudden and unexpected rise of water in the Rideau river, I have found it indispensably necessary to move the greater part of the two companies of Royl. Sappers & Miners to the Works at the Hog's back [sic] to strengthen the Dam at that place.

The tests to his determination, it seemed, were never-ending.

## Chapter 5

### THE CANAL OPENED

Of all the works along the Canal, one strongly suspects that the Hogs Back dam was By's favourite. It was, certainly during his third year in Canada, to be the showpiece that would quiet the cynics and malcontents and reassure the doubters. Of all the single works, the dam at Jones Falls was its only real rival, and progress there was far behind in late 1828 and early 1829.

On November 20, 1828, some nine days after the vaguely ominous letter informing the acting Governor of the precautions that he had taken at the Hogs Back, By forwarded a progress report to Kempt's military secretary, Colonel Couper. To the date of writing he had spent £15,3317. 1s. 5-1/4d. on the Canal since the beginning of operations, and had a current balance of little more than £12,582 of which £5,000 was due to contractors. That, however, was not a matter of long-term concern as the principle of financing had been established by Kempt's commission the previous June. All things considered, By thought that there had "been an astonishing quantity of work performed," and he enclosed a long and detailed listing of accomplishments for each of the stations on the Canal in support. He particularly mentioned the completion of the bridges across the Ottawa (the Chaudiere Bridge had been destroyed the previous April and had now been rebuilt) that facilitated the movement of people and supplies from Hull, and the making of a water-tight mound across Dow's Great Swamp" which places beyond all doubt the practicability of converting that unhealthy swamp into a fine sheet of water, and does away with the original idea of forming an aqueduct[sic] in the centre of the said mount. "

Then once again he returned to the subject of the Hogs Back dam. At the time of writing he had raised the river to a perpendicular height of 27 feet and was "busily employed" in thickening the base and building the arch key work which had suffered from the spring floods earlier in the year. He expected that he would succeed in reaching the necessary height of 45 feet by November, 1829.

Less than a week later he again wrote to Couper, saying that as he had the better part of the two companies of sappers and miners, as well as about 300 labourers, at the Hogs Back, the Ordnance Paymaster for the Rideau, L. Rudyard, was having to visit the area every week with cash to pay the men. That was a further indication that the work was now in every way a major one. In fact the establishment at Bytown was so depleted that there were scarcely enough military men there to mount guards and protect the Military Chest, stores, offices and other buildings. By requested that more troops be sent to him for these purposes so that the sappers and miners could concentrate on canal-building. The request was refused at Quebec, and By was told to hire more labourers (remaining, of course, within his budget).

On the last day of November By included in a further communication, the news that the American contractor, Fenlon, had run into so many difficulties (financial and otherwise) that he had "failed in his undertaking" and was being replaced by Philemon Wright and his sons. Their means, too, "not being equal to the work," By felt obliged to supply "upwards of 200 Labourers, and as many of the Royl. Sappers & Miners as can be spared from the guards & other unavoidable duties." His estimate for completion of the dam was by then the spring of 1830, even allowing for "great exertion during the whole of this winter" to raise the arch key work above the point where the spring floods would be able to do any damage.

At the beginning of December, 1828, under the ever-present supervision of Captain Victor of the Royal Engineers, the river had been raised to 33 feet perpendicular above its bed. At Christmas By wrote to Kempt that this height had been successfully maintained, and he had "not the least doubt of succeeding in raising it to the required height of 45 feet." By the 2nd day of January of the new year, his estimated time of completion was back to the end of December, 1829.

In January By busied himself with the problem of supplying bulk provisions to labourers employed by contractors who had gone into virtual bankruptcy. This procedure was to the great consternation of the local Assistant Commissary General, Strachan, who felt that public supplies were being made to private persons, but he was reassured by the Commissary General in Quebec, Routh, whose view of By's interpretations of Commissariat regulations was generally restrictive to say the least.

By February, however, By had once more to deal with the Hogs Back situation. One R. D. Fraser who, with a Dr. H. Munro of Montreal, owned most of the land in the vicinity of the dam, presented By with a plan for a proposed town there and suggested that the Ordnance department buy the land that was required for canal purposes. By offered £400 sterling for 40 to 50 acres on which log houses had been recently erected, "some . . . at the expense of Government for the use of the Works, and the remainder by the Workmen, or persons connected with the Works." Much of the land, By wrote to Durnford, the commander of the Royal Engineers in Canada, on February 4, was required "to lay the Stones & Materials on for the Works," and in his opinion it would be less expensive to pay the £400 for a specific amount of ground now, than have a jury later award a sum for "such parts as may be found absolutely necessary to retain for the use of the Canal only." In fact, added By, it might be even better to buy the whole of Fraser's lot of 500 acres for about £1,000, and have it settled by the immigrants who were presently canal labourers, in 25 or 30 acre lots, as they could provide a permanent defence force for the dam and obviate the requirement of a fort close by.

In March, Dr. Munro accepted By's offer of £1,000 for his 800 acres on the east side of the river, but required mill privileges. This was to cause complications. By mid-March, too, Fraser had become impatient and, as By informed Durnford, "very pressing for the payment of Damage he has sustained by the Workmen at the Hog's back [sic]" By therefore took "upon myself the responsibility of purchasing the front of his two lots" of 45 acres for £400 with an option of the other 45 acres for £388. Fraser, it appeared, was charging "the poor Labourers" two shillings and sixpence (roughly 60 cents) for each tree that they took for their own needs, so that hundreds of trees were being cut "Slyly without his [Fraser's] being able to detect the persons, but the stumps remain shewing the number that have been taken." If Fraser took the matter to court, warned By, and "taking it for granted" that 200 trees were vanishing off each acre, he would make "the Sum of £11,375 for the timber only." Therefore, argued By, how much simpler it would be to purchase the 455 acres for £388. Durnford agreed.

All these were relative details as compared with the Canal itself. In mid-March, the dam was brought to 41 feet, or only six feet from the height that By had estimated that floods could ever reach, and, with the completion of the arch key work and a bridge from the dam to the stone quarry, as well as three booms above "to prevent the waste weir being choked with drift timber" (at each of which a guard was placed "to prevent the Rafts men destroying them"), By informed Durnford that, "the Works appearing perfectly out of danger," he would leave for Jones Falls on March 17. Lieutenant Briscoe, the supervising engineer, had sent



word that he had taken down the parts of the dam built at Jones Falls, as he felt that By's recommendations were not being followed, so that By now intended "to look after the Dam at that place. "

So pleased was By with the apparent realization of the project at the Hogs Back that, on the same day that he reported on it to Quebec, he also favourably recommended to Kempt a plan for "a water communication from the Ottawa to Lake Huron" prepared by a local man, Shirriff, whose entrepreneurial talents were well-known in the Valley. Then he took off down the Canal, inspecting the contractors' works, as well as the Jones Falls progress, and, on his return, recommended that the contractors be paid by cheque at Kingston instead of having to ship quantities of cash from Bytown.

This, Commissary General Routh refused to do, on the grounds that the contracts had been made at Montreal where they were payable in dollars and half-dollars, that payments from the Military Chest at Kingston were made in British silver, and that the contractors had simply seen a way of making a fast profit out of the eight-and-nine-per cent premiums to be had for the British money.

By the time that this information reached By, it had paled into insignificance beside the most spectacular calamity in the Canal's building. On March 28, less than two weeks after By's estimate that the dam at the Hogs Back was "perfectly out of danger," the structure began to leak noticeably. The spring floods were then at their worst and, despite the fact that "every exertion was made to stop it," the leak increased. Shortly before 10 o'clock on Friday, April 3, By was standing near the centre of the dam, directing the efforts of about 40 men to control the flow, when he "felt a motion like an earthquake, and instantly ordered the men to run, the Stones falling from under my feet as I moved off." With "a noise resembling thunder" the arch key work crumbled about 15 feet above the foundation and near the centre of the dam, and within minutes a third of it was carried away by the torrent. No lives were lost and no damage was done to the surrounding land, but the inevitable post-mortems began immediately.

By was not lost for an explanation. He had foreseen the necessity of having the dam at almost the required height (and in fact he was within four feet of it on April 3) before the floods came, and it was for that reason that he had moved every available man to the site in the winter when Fenlon had made his departure. What he had not foreseen was the effect of the severe winter frosts in forming "the earth above water into a solid mass" that separated from "that which was not frozen" below water level, as soon as the spring floods started to exert their full pressure. The answer was to start and complete the structure in one summer. Of the practicability of the plan he had not "the least doubt," he wrote to General Mann the next day. Nevertheless the dam's collapse had shocked him, and the loss of an estimated £4,000 worth of work, materials and tools would certainly be looked at askance by the Ordnance Board. So By admitted to Mann that he would have to reconsider the alternatives. Therefore he proposed "again exploring the wilderness to the right and left, and taking fresh Sections, with the hope of finding some way by which this bold undertaking may be avoided," although he had gone over that particular stretch of land many times, and:

I fear there is but little hope of finding a better route for the Canal at this place, in which case I shall commence re-constructing the Dam the moment the Spring floods have passed, and you may reply on my using every possible exertion to complete the work before the frost sets in.

By's superiors in Quebec and London were, on the whole, understanding of the failure. Colonel Couper, on Kempt's behalf, required a more detailed explanation from By, for transmission to the Secretary of State, Sir George Murray. By, on April 23, slightly amplified in technical terms his earlier explanation, adding that on his second attempt during the coming summer (by-passing the Hogs Back, he had already decided, was quite impossible), he would use timber filler with stone and leave the arch key work to be completed later. Once again, too, he repeated his plea for a detachment of 30 men of the Line, to relieve the sappers from their guard duties--"there are no persons I can hire, who are of equal value to them, and much depends on every part of the Dam being equally well executed." Kempt in the meantime contented himself with an admonition to By to construct "the Dams perfectly impervious to water," in answer to which By, on April 25, wrote: "I beg to state that on that principle I have acted from the commencement of the works. "

At the same time he enclosed a report from Lieutenant Pooley at Smith Falls. The dam there, like that at the Hogs Back, had sprung a leak through the arch key work, and Pooley had a party of 30 men attempting to control the "dangerous state." The dam at Old Sly's rapids, about which By had had "great doubts," was, however, according to Pooley's report, standing up well to the spring floods, which By attributed to his having "taken the precaution of forming a waste weir to prevent any extraordinary rise of water." Setbacks of this kind, By informed Kempt, had to be expected. The dams at the Hogs Back and Smiths Falls had been the first started, and at the time "there was not a man in the country that had ever done any key work," so that he had "repeatedly to pull down their work before they understood it." From now on things would be different--"there are now plenty of men who understand this work"--and he hoped that "all my other Dams will stand the test of ages. "

At this point in time By took to his bed with a "serious illness" (apparently a heart attack)--sickness, including the "Lake fever" was to plague him throughout the year--and surgeon Tuthill was with him constantly for perhaps a week. By attributed it to "the practicability of my project" at the Hogs Back being "doubted by many." But in early May, when Durnford arrived at the Canal for an inspection tour, By insisted on accompanying him down the Canal to Kingston and from there took a steamboat to York (Toronto) to meet with the Attorney General.

In fact the dam was only one of his worries. According to Hagerman, legal counsel for the Canal, By was in April and May "molested, and now is threatened with law suits, and both his person and property daily made liable to arrest." A landowner was claiming "trespass" (later, for legal reasons, changed to "ejectment") as a result of By's attempting to take land for a reservoir for the first eight locks at the Ottawa. As well, Walter Fenlon, the former Hogs Back dam contractor, and two former sub-contractors (claiming to be otherwise), Alexander McMartin and Angus McDonell, demanded compensation for broken contract, losses on contract prices, and payments which they claimed that By had both guaranteed and promised them. By would have none of their claims, so that they petitioned Kempt and when he, after referral to By, refused them, Fenlon took to the courts where eventually, in August, 1829, it was found that By had not gone beyond his rights as an agent of government. Another former contractor, William Hartwell, who had given up the excavating in the Rideau Lake area the previous October, and who claimed losses of £2,000 followed their example, but by late summer he, too, had to accept that he had no legal claim.



The question of the extent of By's powers to enter upon, and take land, was, however, a far more important one and so legally complicated that it took considerable time to settle. When, as in the case of Fraser's and Munro's properties at the Hogs Back, there was outright purchase, the difficulties were relatively minor. (Although it took, until October, 1829, for the purchase of the whole of the two properties to be "settled with," for the matter had to be studied by the Secretary of State for War and the Colonies and the Ordnance Board in London, and sent back with the necessary recommendation to Kempt and Durnford; and in the meantime Fraser and Munro were threatening to sue for damages.) But these purchases were, in the spring of 1829, the exception. It was because the threat of court cases seemed likely to bring the Canal works to a halt for an indefinite time, that By sought the Attorney General's opinion in May, and he was none too happy with the answer--that he was exposed to court action "because every subject who thinks himself aggrieved by another may make this claim for redress by action . . . . The protection afforded is by guarding the Officer against the consequences." Attorney General Robinson felt the Act as it stood was comprehensive enough and required no embellishments. Robinson spoke of a committee being set up from among the officers, and of their evaluating and entering upon land in a body (apparently with the idea of giving By collective protection, as a landowner would be confused as to whom or what he could bring an action against). By seized on the notion and, in late May, discussed with Durnford "the necessity of a Committee being appointed to take possession of the Lands required . . . that I may be relieved from so responsible a situation." From there it advanced to the point of adoption by both Kempt, as Governor, and Sir John Colborne, the Lieutenant-Governor. But in mid-summer, after much comment and some action, Robinson's plaintive appeal, that the Act was still better than a committee, led to the idea being put to rest. By stated that he himself was content with Kempt's "opinion . . . that Colonel Durnford's Certificate will be sufficient to authorize me to take possession of the Lands, . . . as much time would unavoidably have been lost had the proposed Committee been appointed," but in the long-run this made administrative life no easier for him.

Durnford's 1829 spring inspection tour, however, certainly supported By's capacities in the immediate tasks of canal-building. He found that "every possible exertion is making to prosecute the works" once the floods were past, with the only real drawback being a lack of labourers. As to the quality of work, "(the) several Contractors for the Locks seem to be using every means to surpass each other." The entrance locks were nearly in the position of having the sluice gates installed, and the locks at the various other stations were not far behind. Durnford's ground inspections had also led him to the happy conclusion that less damage would be done in flooding land once the dams were finished than he had first expected. This was especially so in the area between Brewers Mills and Kingston Mills. As for the Hogs Back dam, which was still then very much on people's minds, he had consulted with By "on various ways for the reconstruction," and had suggested making two dams instead of one. But By had assured him "that, had it been practicable at any reasonable expence [sic], to carry such views into execution, he would have before attempted to do so." With the extra precautions, thought Durnford, "a confident expectation of success may be reasonably entertained." These precautions consisted of considerably thickening the arch key work, of forming a brushwood dam, lowering the waste weir and turning it further from the dam proper, so as to break the current and lessen the pressure, and constructing "a large Barrel Drain to be closed or opened at pleasure, so as to regulate the expenditure of Waters."



Soon after Durnford's departure, By sent on to him an estimate of the additional lands that would be required, taking care to point out that the original Rideau estimates included only lands "indispensably necessary for the construction of the said works." He suggested that a precedent for further purchases had been made the previous year when some £8,000 (actually £8,500) had been authorized for buying mills along the river (£2,000 each for Chaffey's mills and Brewer's upper mills; £1,500 for the sawmill at Smiths Falls; £1,000 for disturbing Merrick's mills; £700 each for Davis' sawmill and the sawmill at Long Island; and £600 for damages to Lock's distillery at Clowes Quarry). His new recommended purchases totalled some 5,000 acres (55 of them cultivated land) and--too numerous to name in detail--included such items as: "Smith's Falls--18 acres on the left side and 4 acres on the right side; . . . [and] Cranberry Marsh--20 acres drowned--High rocky land bordering the Marsh the whole of which has already been overflowed by the Construction of Dam at White Fish Falls and the Round Tail by Mr. Brewer."

Work continued slowly into the summer, with a dearth of labourers willing to risk the "Lake fever" which made its customary entrance with the mosquitoes. By visited Montreal in July and, on his return, took the Lieutenant-Governor on a tour of the Canal. Also, he received visits from contractors on the Welland Canal, who came "down to look at the Hog's Back[sic] with the intent of offering to construct that Dam" on American principles; "but, By wrote to Kempt, [they] have declined making any proposal being afraid to undertake it."

In late summer, By's greatest worry was the excavating between Rideau and Mud Lakes. There had been so many deaths there that only four men were then working in the area, and By expected it to be the last work that would be completed on the Canal. To speed matters up he proposed sending an officer and foremen with 300 men, "as soon as the sickly season is passed" in September. The By himself fell victim to the disease, and it was not until October that Tuthill judged him "in a state of convalescence, but . . . in so debilitated a state that I am of opinion he will not be able to perform active duty for a considerable length of time."

Again it was Durnford's arrival that got him from bed. In mid-October, Durnford, on his way to Kingston, noted that; "the several works along the line of the Rideau Canal are proceeding satisfactorily." Then he made his way up to Bytown, finding By's health "so . . . reestablished[sic] as to enable us to enter on the public business," and the two of them went together down the Canal in November spending one long night "frozen in the Mud Lake . . . in a small uninhabited Island." Durnford could only be impressed by all that he saw. By had "now got possession of and commenced" every lock and dam throughout the Canal, with the exception of the Whitefish Falls area where a temporary dam that he had put up had been destroyed, making it temporarily "impracticable to navigate from Jones to Kingston Falls."

Kempt, no doubt alarmed by the harmful effects of a rigorous life on By's constitution, sent him a senior assistant of his own rank--Lieutenant-Colonel Boteler of the Royal Engineers. By placed him in command of the Kingston division, which extended as far as the Rideau Lake narrows, and Boteler spent his first months supervising the surveying of lands which would be needed for defence works, and marking boundaries with stone slabs carrying the military arrow and year of placement, which were designed by By to be irremovable, to prevent "litigation hereafter," and to "last forever."





Jones Falls Upper Locks (top) and Dam (bottom), circa 1880. (Public Archives of Canada).







At the end of 1829, By estimated the works to be three-fifths completed, but he had by then spent £349,264 as compared to £296,666 which he had been given specific authority to spend in the four years from 1826-9, leaving a balance of £227,492 from the £576,757 estimate that Kempt's commission of 1828 had accepted as a fair figure for the Canal. He therefore expected to be finished — in August 1831 — "with very little excess on the said Estimate." Storm clouds were already gathering again in London over his excessive expenditures and By must have guessed that such might be the case, for he carefully inserted "for the information of His Lordship the Master General," the explanation that "it was not in my power to limit" his annual expenses to the official amounts, as the contracts were so worded that "payment must be made as the works progress." The "Lake fever" had increased the expenses of the contractors to such an extent that they were eager to press ahead with their works and be finished and gone in the shortest possible time. Therefore, suggested By, £200,000 would see him nicely through the next year, and he would put the finishing touches to the Canal in 1831 with the £27,492 remaining. So far as his detailed calculations went, he observed "these ... must not be considered as the *positive* sums required.", because clearing and deepening various sections of the Rideau and the Cataraqui, Cranberry Marsh and Lake, and the narrows at Rideau Lake, "are Services so interwoven with unforeseen contingencies that the expenses of them must remain uncertain until they are complete." As a sweetener for his year-end report, however, By had the news that the Hogs Back dam was nearly finished, "and answers the desired object, in every respect." He had reached the planned height of 45 feet "and thrown back 6 feet depth of water into the Lock at Black Rapids."

In the second week of January, 1830, By was "inclined to call this great work finished," as all that remained to be done was to strengthen the centre, which in fact already seemed strong enough, and to dress off the ground which could be done in spring. The flood waters would now have to pass over solid rock on the dam's last flank, and the west flank was protected by the lock and its wing walls, "with a strong natural Bank considerably above the required level."

All this, of course, meant extra cost and, in his report of March, 1830, By noted that his excess over his original estimate for works from the first eight locks to Hogs Back was £15,299: This was marked down to "extra Masonry in Breast Work from bad foundations, constructing Waste weir &c." From Hogs Back to Wilson's and Black Rapids--interconnected works--the excess over estimate was £6,327, as a result of adding to the foundations of the locks at Hartwells, the addition of a waste weir there, and the guard lock at Hogs Back.

Although the Hogs Back area increase was the largest one, practically every other station was proving more costly than had been anticipated. At Jones Falls the estimate was then up by £15,164 because of difficult rock excavation, "bad foundation of River Lock, [and] angling Lock to suit Line of navigation down marsh." At Long Island it was £13,801 in "consequence of increased height of Dam & consequent increase of volume of waste weir to carry flood water off bad foundations." The impracticability of raising the level to the intended height at Smiths Falls, the construction of a detached lock, and extra rock excavation, had raised the estimate there by £13,095. From Rideau Lake down through to Mud and Clear Lakes, the great amount of rock excavation--that "could [not] at first be ascertained from want of boring rods"--and the construction of an extra lock, had brought about an excess of £13,438. At the first rapids after the Smiths Falls works, the necessity of clearing land "for free circulation of air and of excavating deeper because the dam at Smiths Falls could not be built to the intended height, had added £7,852 to

the cost. At Old Sly's rapids, £5,597 more was required for extra clearing and rock excavation, for strengthening the lock on the river side, for the increased size of the dam, and for the construction of a waste weir. At Nicholson's to avoid drowning valuable land, the construction of a waste weir, and the greater height of the dam, £3,939 more was needed. At Merrick's mills, the original line had been changed and this, together with other minor tasks--"Extra grubbing, detached Lock, Extra Sills, Basin Walls, deepening River &c."--had caused a revision of estimate of £3,371. Changes at the two extremities of the Canal were small by comparison. At Kingston Mills, because of "increased height of Dam to save sickness, & excavation, consequent construction of waste weir &c." there was an extra cost of £2,892, while at the first eight locks at the Ottawa, bad foundations and the constructing of drains had required upwards revision of £1,418. The overall increase totalled £123,866, but decreased to a real excess of £113,848 when savings of £10,018 were deducted. Most of these savings were made at Chaffey's mills and the small isthmus on Indian Lake, as a result of "throwing more water back by Dam at Davie's mills." Other small savings were made by doing away with the works at Phillips bay and concentrating them in that area on those at Edmond's rapids and at Brewer's Mills.

Within a week of this revised estimate having been forwarded by By, Durnford wrote an explanation "regarding the Estimate for the expence [sic] of the Rideau Canal" in answer to a letter he had received from the officer of the Inspector General (Mann) of Fortifications (which letter had been the result of a voluminous correspondence between departments in London), stating that: "the Lords of the Treasury will not propose to Parliament to grant a larger sum than is sufficient to complete the Estimate of £558,000, without the most clear and satisfactory evidence of the necessity." If By were restricted to the parliamentary vote, wrote Durnford, it would be impossible to recompense the contractors, who had laid in all their supplies and materials, and this would "inevitably produce such appeals to the Courts of Justice, as would involve the Government in expences [sic] far beyond the amount of their Engagements with the Contractors, and tend to paralyze [sic] the undertaking." Coming from the Commanding Engineer, Canada, this powerful argument had, at least for the time being, more effect than if it had come from By himself.

By, meanwhile, had become embroiled in the other financial, and legally complicated problem of taking possession of lands along and contiguous to the Canal. The earlier solution, despite the considerations of the Governors and the Attorney General, and Durnford's Certificate, proved unsatisfactory, and By continued to agitate for the Rideau Act's revisal or amendment. The new Attorney General, H. J. Boulton, like his predecessor, considered the 1827 Act to be quite comprehensive enough. Eventually, on May 6, 1830, he wrote that there was no question of By's being able to take land, but "the important question is 'how much land can he take?'" If he took land "for purposes not connected with the works he is not at all protected, and therefore in all doubtful cases, I would recommend Col. By resorting to the Law, rather than the force placed at his disposal." When it was a question of necessity, he would advise By's taking possession, using as little force as he could. The Act allowed By to "set out and ascertain" given sites--which included, in Boulton's opinion, contiguous lands--and he would "file an Information for him [By] against any person who intrudes upon it [a site], thereby obtain the opinion of the court upon the construction of the act, and if need be, carry the question home by appeal to the King in Council." Consequently he wanted immediately a list of persons, "their places of abode, and occupation," who were resisting By, and he would "file an Information" against them without more ado.

This direct and understandable procedure had an almost instantaneous effect. By showed the letter to a Mr. Kennedy who, like many other proprietors along the



Canal, was demanding exorbitant prices for his land, was refusing to accept By's argument that any increase in their value was due to the Canal, and that the Rideau Act required that valuations be made on the basis of those existing three years before the works were started. Kennedy's attitude, said By who saw him personally, changed completely. Kennedy apparently passed the information on to a Mr. Mutchmire, who considered himself in the same situation, and before long the word spread like wildfire among the landowners along the Canal. By added a bonus for those who chose to co-operate. He would lease back at a nominal sum--one shilling (about twenty-five cents) per acre per annum--those parts of properties which he purchased but did not find essential to the works.

By May 19 he was able to write to Mann and Kempt that:

I have the satisfaction to state that the various proprietors appear to have altered their opinions; and generally speaking are now willing to take the real value of their Property instead of asking ten times its value.

In the communication to Mann he closed with: "I therefore trust this Summer will enable me to close all the necessary purchases of land." That for Kempt continued:

... provided they are allowed to lease such parts of the said property as are not required for the Public Service and as the great use of retaining the land is to prevent future claims for damages as the Canal enlarges by the Wear and tear of Steam Boats, and to prevent buildings being erected in the line of fire of works that it may hereafter be found necessary to erect, I trust no objection will be found, to leasing such portions as are not absolutely required at present.

In many cases, explained By, it would not have been possible to make advantageous arrangements for purchase without taking an entire property and giving back a 30-year lease. One Allen McLean, for example, had claimed £4,000 for damages to his 2,800 acres, but he had accepted £2,000 as a purchase price and had taken out a lease. The procedure could be expected to at least halve government expense in such matters. All claims, as such, by contrast, would be deferred until after the Canal's completion, and this proprietors knew.

The first response to this from Quebec was mild, and By answered it with the information that he always consulted with his legal counsel, Hagerman, before making a purchase so that to the best of his knowledge all the legal loopholes were nicely attended to. The second was more pointed and asked on what authority By was purchasing and leasing lands, and requested a statement of the quantity purchased, the price, the rent and the names of the persons involved.

This clearly being a matter of importance, both then and for the future, By answered it in great detail. He had, regrettably, no "positive authority," except in the purchases of Fraser's and Munro's lands at Hogs Back, but he had made provision for them in his original estimate (to the amount of £10,656). There were now, true enough, additional purchases not specifically provided for in that estimate, but it was not in his "power at the time ... to ascertain the precise quantities that would be flooded." To demonstrate again what he was doing, he cited the example of John Johnson's 1,117 acres:



... part of which appears by examining the Surveyor General's Plan, to be swamp:- My raising the Rideau River 2 feet, may much increase the size of the said swamp. To employ a sworn surveyor to ascertain the extent of damage would cost at least £100, and in all probability the damages would amount to at least £150, independent of other incidental expences attendant on the settlement of such claims; to avoid which I offered him £200 for the whole of his Estate, with a lease for £10 per annum, he argued that his property was worth £1,000 and that he would sell to Government for £500 ... I would give no more than I felt confident it would cost to settle the said claim, which offer he has accepted ... This is the principle on which I have acted in all the purchases I have made.

As well, despite his not having "positive authority," he had not gone beyond his specific instructions to settle all claims when he could, and he cited a letter written by the Governor's military secretary, Couper, on December 19, 1829, to the effect that;

It is very desirable whenever it may be practicable that the Land required for the Canal should be immediately purchased (when it can be accomplished in reasonable terms) by Lt. Col. By, as directed by the act of the Provincial Legislature.

The fact that his superiors were frequently unaware of what they had and had not permitted him to do or not to do, was something that By had learned to live with and would not soon be allowed to forget.

As the procedure developed, By would make his purchases and leases, forward them to the Governor to be sanctioned, and he in turn would send them for approval to the Ordnance Board. This long-winded process served the purpose of ultimate confirmation of what By did on the ground. The Ordnance Board would virtually approve en masse purchases amounting from anything between about £45 and £400, would question larger sums, such as £2,000 on a mill at Kemptville claimed to have been damaged by the rise in the water level, or uncertainties regarding lands in Pittsburgh township which was greatly affected by the construction at Kingston Mills, but would also take its time in approving such minor leases as those of £12 per annum, made with James Patrick and Edmund and Michael Murphy, in North Gower, in 1831. It was, in strict terms, somewhat confusing (a letter of the Ordnance Board in March, 1831, eventually served as a vague basis), but By seemed to find his way around the obstacles with such statements as:

I send this (diagram of land purchases) ... being anxious that the Honorable Board may be fully aware of the great advantages Government are deriving by my embracing every opportunity of getting rid of claims for damages in order that I may be relieved from the responsibility of making such purchases by their approval of my so doing.

The Navy Board, too, managed to make matters even more complicated when in November, 1830, it purchased Hamilton's property at Kingston Mills (By had himself wanted to obtain it in September). By's old confidant, Commodore Barrie, when informing him of the fact, added that, "the Naval Department will look to the Ordnance Department for payment for all damages done." This, complained By to Durnford on December 2, "notwithstanding I have improved the Property."

By mid-summer, 1830, the works themselves had cost another £90,497, bringing their total cost so far to £441,183, and By was talking of preparations to open 50 miles of the Canal, from the Ottawa entrance, in the following September, with the whole line to be navigable by June, 1831. He would, too, he wrote to General Bryce on July 13, be able to do without the two companies of sappers and miners from the end of June, 1831. And, provided the Canal was fully open, he would himself like to return to England in August or September, 1831.

The area from the first eight locks to Wilson's, in which the Hogs Back dam was the principal feature, was, by July, 1830, predictably the most costly one, with £74,011 having been spent on it. Next came the entrance valley and locks at the Ottawa, with £58,684, followed by Jones Falls with £32,438, the Long Island stretch with £29,298, and then Kingston Mills with £27,768 (although here the work was barely half done). Adding considerably to the total were the general contingencies, including civil and military establishments, of £78,434, which were expected to increase to £138,050.

During the summer of 1830 the works were again brought to a halt for periods of time because of sickness. It was particularly severe in the Brewer's Mills area and between Rideau and Mud Lakes throughout August, despite By's having arranged each year for the clearing and draining of a wider strip of land, "to form a current of air." Nevertheless the works were, towards the end of the summer, considered to have advanced "most satisfactorily," and with "but few and trifling exceptions."

These exceptions, as Durnford noted them in September, were, firstly, at the entrance locks where there had been "considerable" slippage on the banks, which he attributed to "not having formed towing paths to divide these high banks in two," but which was then being done "to prevent a recurrence of the evil"; secondly, at Dow's Great Swamp where the embankment "had sunk considerably" although this, expense aside, could perhaps be considered an advantage, "as tending to give it a more solid and permanent foundation"; and thirdly, at Long Island, where the clay soils next to the waste weir had been washing away to the extent that the water level had had to be lowered, but By was giving this his "particular attention."

With completion in sight, other matters of a more routine nature required By's attention too. There was, for instance, the necessity "to complete a greater portion of the heavy iron work for the Gates &c," due to the increased pace at which the masonry of the locks was being carried on. Much of the iron work had come from the well known St. Maurice, Quebec, Iron Works ("The St. Maurice & 3 River's Iron Works") in the previous two years, from where it was shipped at £22.10s. a ton, and chains were also obtained from the Navy Dock Yard at Kingston. But the increased local fitting meant that By, at the end of August, had to write to Quebec for an extra "Eighty Chaldrons of Newcastle Coals" which were essential to the process of heating and shaping.

So many requests arrived from former servicemen and other civilians who had at one time or another been attached to military establishments, for positions as lockmasters and foremen on the Canal, that thought had to be given as well to the numbers of employees that the Canal's maintenance would require in the future. In November, 1830, By was asked to give his official opinion, and he gave to the departing Sir James Kempt (who was replaced in that month as Governor by Lord Aylmer), a memorandum showing that a minimum of 20 lockmasters and 35 labourers would be needed. He recommended a number of persons specifically, whose past services deserved life tenure in the new posts, at a rate of pay of seven shillings



and sixpence a day (say about \$1.75). Furthermore, he suggested that Captain Bolton, who had been his right-hand man in charge of the Canal office at the entrance valley, be his successor as officer in charge of the Canal.

By also gave detailed advice on the care of the Canal, on the clearing, lowering and raising of the water level, the closing of waste weirs, and so on. That his notions on the use of the Canal had remained constant was shown in his suggestion that, the "exportation of British Manufactured goods, into the United States of America" would be encouraged by allowing captains of boats to purchase tickets from the Commissariat at a seasonal rate of five pounds. Crew members would pay five shillings (about \$1.25 in round figures) each time they passed through the canal, and passengers would pay the same with an extra three shillings (about 75 cents) per hundredweight for baggage under one ton. By confidently expected 8,000 persons to go through the Canal each year once the routes were established. At five shillings each, the resulting revenue would be £2,000 annually.

Commodity articles were something else again, and it was here that By expected great profits to be made. Dry goods, charged at one pound per ton and 10,000 tons annually would bring £10,000: with the same rates for flour, and wines and liquors, he anticipated incomes of £20,000 combined. At one pound per ton, potash would bring £5,000 a year. Various types of grain, at a shilling a bushel, were reckoned at 10,000 bushels, or £500. Elm, pine, cedar and all softwoods would be charged at a penny per cubic foot, or three shillings and fourpence per ton, and with an estimated 9,600 tons a year, were to bring £1,600. Oak, at two-pence a cubic foot, or six shillings and eightpence per ton, at 3,000 tons annually, would fetch £1,000 — as would staves, at one pound per ton and 1,000 tons a year. Livestock, by comparison, would be a minor item, with cattle and horses at five shillings each, expected to total 2,000 annually for an income of £500; and sheep, pigs and calves, at one shilling and threepence, and 1,000 expected, to produce a mere £62. 10s. The total income from Canal tolls would then be £41,762. 10s. for each year. Almost as an afterthought, By noted: "To which should be added the enormous saving arising on the transport of all Military, Naval & Commissariat Stores."

By might confidently have expected an easing of tensions while he concentrated on opening the Canal sometime during the next season. This was not, however, to be. In early Spring, 1830, By had suspended, and then dismissed, one of his office workers, H. H. Burgess, who had come to work for him from Ireland some years before as a result of an application made through the minor aristocracy. By's reasons were that it had become obvious that Burgess was "out of his senses," apparently because he had been "given up to drinking," an opinion confirmed by the medical officer. Burgess, by all accounts an unsavory character in many petty ways, then came back (though not physically) to haunt By from July, 1830, onwards. With a good many stories in receptive ears, Burgess eventually arrived at the Ordnance Board with tales of irregularities, misuse of public money, nepotism and other spiteful accusations, and adding names, times, places and dates. The charges were ridiculously picayune, involving such matters as whether a person had paid for the delivery of water to his lodging, paid a proper rent, and so on. But By, whose financial acumen had long been questioned by his distant superiors, was as a result in danger of having all his operations looked at accusingly. By, in a defence written November 22, 1830, admitted that: "As the Works ... are situated in the Wilderness many trifling irregularities have occurred from the peculiar nature of the Service," but it had always "been my study to prevent ... such irregularities so far as lay in my power."



Burgess, however, after a long and trivial correspondence had passed between persons and departments in the winter of 1830-1, had other stories to tell. In spring, 1831, when a committee of the British Treasury was critically examining the finances of the Rideau Canal, Burgess made accusations of "great irregularities" in the working estimates. "Every year my Lord," he wrote, "I had to make out a progress Report of the sums expended . . . but Lt. Colonel By would not allow me to shew the true expenditure on certain works. Viz--the Chaudiere Bridges across the Ottawa river which has cost the British Government an enormous sum of money," which was carried over to expenditures shown for the entrance locks or the Hogs Back dam. There were other matters regarding the preparation of financial reports, and, from New York, Burgess said that he would "lay before (as the head Clerk) His Majesty's Government in London satisfactory Statements as to the true expenditure of £349,642." By, in rebuttal, pointed out that such persons as McTaggart, Gibb, and Burnett, who had worked on the financial reports, were all dead, as Burgess well knew, and could not therefore defend themselves, but he nevertheless had Captain Bolton prepare an abstract of all the accounts. It appeared that Burgess's mathematics was not always the best and he had resented his figures being corrected by persons that he considered his inferiors.

The whisper of deception, however, was deemed sufficiently serious to require an official board of enquiry and, in the following November, 1831, one was established at Bytown with Colonel G. Nicol from Quebec as its president. Burgess, still busily indulging in muck-raking by sending letters to Cabinet Ministers in London, refused as late as January, 1832, to go to Bytown, on the grounds that he would not leave the place alive, and demanded that the board re-assemble in Montreal. Then, during a three-weeks stay in Bytown, he demanded a military guard, as well as payment for his appearance, and when refused he wrote in pique that "every opposition having been thrown in my way by the Respective Officers at Quebec . . . I have found it necessary to lay their proceedings before the House of Commons in London." Persons who had to have contact with Burgess appear generally to have been likely only to have killed him with kindness, although from the correspondence it is a fair guess that many of the officers had to hold their sides from laughter. The whole inconclusive (because ridiculous) affair should probably have been dismissed as a fiasco, but doubts remained that did not make acceptance of By's estimates and later explanations for the Treasury any easier.

The handicap under which this episode placed him, plus the departure of Kempt with whom he had generally been on good terms, and the knowledge of the financial investigations under way in London, seem to have drained from By some of the enthusiasm and persistence that were so noticeable in his first years at the Rideau. On January 8, 1831, when he forwarded his progress report to Lieutenant-Colonel Glegg, military secretary to the new Governor, Lord Aylmer, his explanation of the estimate contained the bare bones of the fact that he had now spent £575,551. 4s. 2-1/2d., leaving £117,898. 7s. 7-3/4d. of the amount (including all items) of £693,449. 11s. 10-1/4d. that Kempt's commission had authorized. The whole works, he added, should be completed the following August, "but as the expence [sic] depends in a great measure on contingencies, the extent of which cannot be exactly ascertained, as they chiefly arise from the immense pressure of water, and the periodical sickness, it is impossible for me to report the precise sum." He trusted, too, that "His Lordship will honor me with his presence at the Opening of these Works."

In December, 1830, the British Cabinet had decided that the Ordnance Department was to have complete control of the Canal, so that problems of transfer of jurisdiction were kept to a minimum. So well did all arrangements seem to be fitting into place that, in mid-May, Peter McGill, the Chairman of the Ottawa Steam Boat Company, and a well-known man in Canadian commercial circles who was

soon to be President of the country's firmest financial establishment, the Bank of Montreal, and a member of the lower province's Legislative Council, wrote to By that: "At your particular desire--the Union Steam Boat is preparing as fast as possible to go up to make an attempt to Navigate the Rideau Canal." This "speculation," McGill suggested, could possibly involve his company in "some Loss," so that its management would be grateful if By would put into writing "that no Lockage or any other Canal dues will be exacted from the said Boat and her Barges during the Season," and that freight and passage costs would be paid for by government at going public rates.

By was taken aback by this. "I am much surprised," he replied, "at the tenor of your letter." During a conversation that they had had some weeks before, he had thought that McGill might be interested in running the steamboat between Bytown and Burritts Rapids and, as there was a good quantity of iron work and other commodities for the Canal to be brought up from Montreal, he had suggested that McGill might at the same time bring them up at "a liberal price" to be paid by government. As an encouragement By would then have allowed free passage through the locks until the Canal was open to the public, which was expected to be August or September. "I cannot conceive," he added, "why I should be asked to bind myself to permit ... [you] to work free of duty for the whole Season."

He forwarded this information to Aylmer's acting Secretary, Captain Airey, on the same day, as he had "no doubt His Excellency ... will be petitioned on the Subject," and certainly he, By, had no wish to proffer the Ottawa Steam Boat Company a monopoly of the route.

'Canal fever,' it seems, rather than commercial mores, was behind that particular exercise. There were a good many people eager to be in at the start, even if only to watch. In June, Governor Aylmer himself arrived to inspect the works in the Bytown region. By at that time omitted to mention that his latest estimate brought the grand total to £719,109, sending this information on instead to Airey after Aylmer's departure, with apologies for not having brought it up during the visit. There was some talk, among the officers of the Ordnance Board in London, of the department being responsible only for £576,757 (which was By's estimate for the 33 foot locks to Kempt's commission); a reading of the eleventh article of the Rideau Act had seemed to them to indicate that this should be the case. The onus for the rest they intended should be passed on to the province, and in fact the matter eventually reached the provincial House of Assembly, which flatly refused any part of the expenses.

At the end of July, 1831, By learned that he was to lose Lt. Colonel Boteler, who was transferred to Nova Scotia. At the same time, Durnford received instructions to return to England and turn his post as Commanding Royal Engineer over to Colonel Nicolls, who was returning to Quebec city after a long stay in Nova Scotia. Instead of Captain Bolton, Captain Victor had been selected to take charge of the Rideau Canal once By was gone (time was in fact to reverse this decision), but it was made clear to By "that he is not to leave that Canal, nor to deliver it over ... until all the Works for which he ... has estimated, shall be entirely completed."

That moment, it seemed, could not come too soon for By. He planned in great detail to open the Canal on August 21, 1831, at least as far as Burritts Rapids, and had steamboats preparing to make an entrance some days before. He was, as he said, "exciting myself" with the opening when, on August 18 or 19, he found the "water being cut off" by Merrick's having dammed up the river while he performed repairs on his mill (at today's Merrickville). This was too much for By. "If," he wrote to the Ordnance officers at Quebec, "individuals are allowed to control the waters of the Rideau Canal, the great expenditure that has already taken place will



be rendered of little value." Merrick should be officially warned to stop such capers, and "the law Officers of the Crown should be authorized to take such steps as will effectually prevent such interruptions." The Ordnance officers, sympathetic to By's frustration, relayed the information to the Governor with a request that in future such practices be remedied "without waiting for legal intervention; as the delay to be experienced in such cases, must be productive of the greatest injury to the Rideau navigation." The Governor acted accordingly and, in the fall of 1831, a steamboat, unheralded and its name not known, did get as far as Nicholson's after the locks had been repeatedly filled and emptied to test their worthiness. This information By casually provided in his progress report at the end of the year. The official opening was postponed until the following year.

To the delay, the latest in a series of discouragements, were added the pin pricks of a new administrative routine. In November, 1831, when asked for his estimates from that time through the following year, which under the new regulations were to be submitted to the committee of officers at Quebec, By remarked simply that he would need £15,000 for that month and for December, £1,000 for each month from January to April inclusive, and £13,000 in May. This went by way of the Commissariat department, through several other hands, and eventually wound up with the Commissary General, still the irascible Routh, who noted on it: "This Estimate is of no service whatsoever, it comprises only One half of the year, and is not in the usual form of such documents as are to be submitted to Parliament." Aylmer's secretary, Glegg, intervened and the matter was amicably settled according to form.

Then, in March, 1832, the commissary officer at the Rideau, MacNab, sent to Montreal for £15,000 in specie in anticipation of heavy demands during the final year of construction. He had already received in January, £25,000 from Routh who, when he heard of the latest demand, suggested in his usual forceful manner that there could be no end to an estimate for specie that had started at £17,000 and was now up to £40,000. Again the Ordnance officers had to smooth the way.

Then, too, there was the question of the schedule of tolls, which would have to be publicly posted before the Canal was opened, and here again a voluminous correspondence developed. By, as has been seen earlier, had made his suggestions but, as these were noised around, there was detectable an opposition to them on the grounds that they were too high. Some members of the administration felt that the rates could be brought down by, for instance, one shilling on five shillings, one penny on twopence, and so on. Also, there was the matter of a percentage reduction when proceeding from Kingston only as far as Oliver's Ferry, or from there to Bytown, or vice versa. Such questions kept the midnight oil burning.

The province's inhabitants, not to be outdone, had their say. From early 1832 the petitions started to flow. One of the first formal ones was presented to Governor Aylmer by William Price, one of the same commercial fraternity as Peter McGill, who, as one of the leading forwarders in the lumber trade, was asked by a group of the upper province's most influential lumbermen, to "use your influence with his Lordship so far as to reduce the toals [sic] on the Rideau Canal." They had, they claimed, been "geting [sic] and making Lumber on the canal with a full reliance that His Majesty's Government would not collect more than 1d. on oak and 1/2d. on all other kinds of timber," and had "made our purchases both of timber standing and that which is purchased on the bank of canal accordingly." Any tolls higher than those that they suggested, "would operate very hard on all those that has Lumber to pass the present season." The petition itself, signed by 29 heads of lumbering firms, read:



... the undersigned inhabitants of Upper Canada interested in the Lumber Trade

Humbly Sheweth

That your petitioners, confiding in the desire of His Majesty's Government, to promote the Lumber Trade of Canada, and having understood that Lieut Col By had often mentioned in conversation that the rates of Toll on the Rideau Canal would be fixed so low that no injury could be feared by those engaged in Commercial pursuits: did not hesitate to commence preparing Timber on the banks of the Rideau, which it was intended should be floated through the Canal at the opening of Navigation -

Your petitioners [sic] have heard with concern that Lieut Col. By has recommended that the Toll on Oak Timber should be two pence per foot, and on that of Pine one penny, and as the collection of a sum any thing like that amount, would operate injuriously to the Trade, and in fact altogether prevent your petitioners from prosecuting it, We have ventured to solicit your Lordship may see the necessity of exerting your influence in the establishment of a reasonable and equitable Table of Tolls for all kinds of Timber and produce, and thereby enable the inhabitants generally to know the amount chargeable for any given distance on the Canal.

The Ordnance officers at Quebec informed By that the problem would be left for him and Sir John Colborne, the Lieutenant-Governor of the upper province to settle. By, however, had some difficulty initially in finding Colborne with enough time at his disposal to discuss the matter. The first royal proclamation announcing the tolls therefore followed By's recommendations and, with the first rafts already passing through the Canal in May, 1832, further petitions followed. Kingston, the province's commercial capital, felt particularly hard-done-by, and its leading citizens sent to Colborne formal notice of their "deep concern." They expected "to participate largely in the benefits that may be derived from that splendid line of inland navigation," and were therefore anxious "that the tolls should be so judiciously regulated as to attract business to its waters, and render it the main channel for the transportation of the produce and merchandise of Upper Canada, and the Southern Shores of Lake Erie." To show that they were not merely carping, they pointed out that; "while the tolls of the Rideau Canal, exacted on a Barrel of Flour, (independently of the tolls at Grenville, St. Annes and Lachine) is One Shilling, the total expense transporting the same from Kingston to Montreal by way of the River St. Lawrence is but two shillings and threepence."

Within a week a second petition followed, this time addressed by the Kingston commercial leaders to Lord Aylmer, and thoroughly comprehensive in its overall view. From "every appearance," they wrote, "there can hardly be entertained a doubt but the Rideau Canal will be in perfect readiness for the passage of Steam Boats and applicable to every purpose for which it was intended, by the first day of July next." The Grenville Canal, however, was not finished, despite the fact that the works there had been going on for many years before the Rideau had been started. "An uninterrupted line of navigation for burthensome craft from the Upper Lakes," was a necessity "to give effect to the commercial advantages conferred upon us, by the amendment made ... to the Canada Trade Act, which permitting us the reception, duty free, of the immense products of the Western Region guarantees to these Provinces a progressive advance to as high commercial and agricultural prosperity as has ever been enjoyed by the most favoured countries." What was at stake was not just revenue from the Rideau Canal "(which, by a judicious toll, will immediately amount to nearly £20,000, p annum)," but "the infallible direction of our Commerce to foreign Channels." They humbly requested that the matter be taken to the throne itself if necessary.



Blockhouses at Kingston Mills (top) and Merrickville (bottom) in the latter half of the nineteenth century. (Public Archives of Canada).









By mid-May, Colborne and By had met and agreed to reduce tolls to a compromise between By's first figures and those of commercial men. "It is a convincing proof," wrote By to Quebec in May, that his original tolls were not too high, in noticing that the merchants and forwarders who used the St. Lawrence route had reduced their rates considerably, "with the hope of preventing the Rideau Canal from being used." In fact, competition between the two routes was the real reason that the tolls were being lowered and, he supposed, there was not much particularly wrong with this as the public benefited and it was also confidently expected that the Americans would find the reduction a great inducement "to send their produce to Montreal instead of Albany." So enthusiastic were the people of Kingston that they were talking of going with oxen, ropes and other equipment to the Hawesbury area "to assist the Durham boats to surmount the various rapids" on the Ottawa at the unfinished works there. "If they succeed," continued By, "we shall ascertain this Season what prospect there is of turning the Western trade that now passes through the Erie Canal, through the Rideau." Cholera, however, slowed and then stopped the Ottawa works during the following summer, so that a planned opening (for Durham boats at least) had to be postponed from August 1, 1832.

The military officers at Quebec seemed a little surprised by the commotion. "It seems to me," wrote Durnford's replacement, Colonel Nicolls, to Aylmer's military secretary, on September 15;

... it would be desirable to transmit the Memorial (of the Kingston inhabitants) home, as shewing how valuable the entire Military Communication by the Rideau & Ottawa, is esteemed by the Inhabitants of Kingston, for the advantages of Commerce in time of peace.

Even the doubting and penny-pinching Routh, admitted that the Carillon obstacle should be removed as early as possible. In July he noted, for Aylmer's benefit, that the Ottawa-Rideau route was already being heavily used for the transport of immigrants (many of whom were also suffering from cholera and other diseases, and were in extremely crowded conditions) and Montreal merchants, and he himself had been sending commodities by it, including "the Indian Presents and a Remittance of Copper Money. "

That particular side of the story was for the most part outside By's jurisdiction, although of course it is an important part of the background. Apart from the administrative demands of the Canal, By's task from early 1832 was to have it opened in the summer. His complete estimate had grown to £803,774, which included £46,615 to complete the Canal itself, £14,000 for the purchase of land and connected compensation, £20,000 for compensation to individuals for damages, and £7,750 for blockhouses, bridges and similar works which were to be built. He stated in March that the unentered section of Canal, from Nicholson's to the Cataragui, would be completed by May 1, but "A Steam Boat may pass these works on the breaking up of the Ice. "

Aylmer found the increase excessive, and once more By was obliged to go into detailed explanation of his figures, taking into account those items laid aside, postponed and otherwise attended to by the administrative officers, as well as readjustments made by himself because of "Casualties" and other imponderables "which occurred during the process of the works" but which could not be "foreseen, or provided for." The quibbling, as By obviously saw it, had gone far enough. There was "a general rule in the Ordnance Department," he pointed out,

... to allow 1/10 at the end of each Estate for contingencies, even when estimating for a building when the Material and Workmanship required can be most accurately ascertained; in extensive

water works, it would therefore appear but reasonable to allow a larger proportion for contingencies, had this been done in the present instance the increase would have been very trifling on an Estimate of £663, 315. 13s. 0-3/4d.

Quebec would not argue the point with him, but the British Treasury, as will be seen, was preparing to do so very extensively.

By, not yet aware of the fact, was at least able to open his Canal in peace. Kingston, whose residents had wined and dined him when the compromise on the tolls was reached, was the starting place for the triumphal procession that set out about mid-day on May 24. Drummond, one of the few really trusted contractors during the years of construction, renamed his boat, *Pumper*, the *Rideau* for the journey (this, as Robert Legget says in his *Rideau Waterway*, was "a cause for confusion in later years") and, preceded by a naval cutter, the *Snake*, the party ascended the Canal as far as Jones Falls where the *Snake* stopped and two barges were cut loose from the *Rideau* which then, with full steam up, plied a speedy path to Smiths Falls where it arrived by six o'clock the next morning. There more persons joined the revelling and, with the pace slowed as the decks became more crowded at each stopping place, the *Rideau* eventually made the entrance valley at Bytown on May 29.

It was little more than a brief interlude for By. The next day he was obliged to convey some sad news to Colonel Nicolls. "A private Individual" at Ansley's Mills (at the south-east outlet of Loughborough Lake) had been responsible for the collapse of the coffer dam at Brewers Mills by having put up a temporary dam of boards and slabs to keep a head of water above the original saw-mill, which had predictably given way. This in turn had caused the released water to rush into Cranberry Lake and then on to the embankments and gates at Brewers Upper Mills. Fortunately only the coffer dam had suffered serious damage, and By was now having to set up a safety gate at Brewers to prevent a recurrence. And this meant that the Canal had to be closed again for eighteen to twenty days. Looking on the brighter side, he added that the respite would permit the unharried replacement of ironwork that had been damaged by the steamer in the journey from Kingston. A good harbinger of things for the future, too, was that 35 cribs of timber, each measuring more than 2,000 cubic feet, had passed the Long Island locks on the morning of the previous day, "with the greatest facility."

Within a few weeks the line was reopened and By took off in July for a short semi-working holiday in New York. When he arrived back at Quebec on August 7, he was handed a summary order to return to England within the shortest possible time to appear before an investigating committee of the Treasury. At Quebec it was arranged that he should hand over his command to Captain Bolton by September 1, the minimum time for making changes of this kind. Back at Bytown on August 11, he found a trial pending against Simpson, Rykerts and Company, the original contractors at Smiths Falls, so he wrote a memorandum on this matter and then, his thoughts obviously still on the military order he had so recently received at Quebec, he took pen in hand and wrote to Aylmer:

I trust His Lordship will excuse my expressing a hope, that His Lordship will honor me by inspecting the said works prior to that day (September 1), feeling confident that His Lordship's opinion will have great weight with the Government at home, and that all who like His Lordship are judges of such work will do me the justice to speak of the works as *they deserve* I therefore most respectfully solicit His Lordship will honor me by naming any day between the 25th Instant & the 1st. of Sept. next, that I may have everything ready to conduct His Lordship through the Rideau Canal.





Kingston Mills Locks, circa 1880. (Public Archives of Canada).







Aylmer, not about to get caught up in the politics of the thing, politely declined through his military secretary--"it would not be in His Lordship's power to grant Lt Col. By's request, but an assurance given that His Lordship will not fail to go there, at his earliest convenience."

By consequently left Bytown shortly afterwards, still brooding, and returned to England without the fanfare for his achievement that he would have received if the Treasury had not made its intervention.

Although By did not have all the figures on hand as he left — time required that he leave the chore of drawing up all the lists to Bolton — the Canal under his supervision cost £803,774. 5s. 6d. This was, of course, a large increase on the £474,899. 2s. 3-1/4d. estimate that he had first sent to England in 1827. But the final statement showed clearly where and how the extra had occurred, from the increase of over £100,000 that the larger locks had required, to the additional works that were explained in detail in each year-end report, to the amount required for block houses, bridges, etc., to land purchases and compensation, all of which have been previously summarized in this narrative, down to the final £46,615 "required to complete the Navigation in 1832." Because of the continuing work on the Canal, and the military accounting practices that had the effect of shifting some of the items around, the Canal's real cost was in fact more than the recorded amount, so that in terms of the dollar of the time the actual expenditure would have been in excess of \$3,600,000.

Considering that Clowes' estimate (which Smyth's committee had adopted) of nearly a decade before had been in the region of one-sixth of this, it is understandable that the British Treasury regarded the Canal's finances with a jaundiced eye, acceptable explanations notwithstanding, some time before even the final figure was reached. In 1831, the Treasury had taken the military Ordnance to task for its construction activities in general, and had made plain that it considered its financing methods not altogether honest.

When By's 1831 estimates were received, therefore, the Treasury was not predisposed to be understanding. On February 7 they sent a number of pointed observations to the Ordnance Board, recalling a number of previous communications that were apparently going unheeded. Not satisfied with the response they transmitted in mid-May, 1832, a copy of a Treasury Minute of the 11th of that month which, though lengthy, is the document that explains By's recall and is therefore important to the story of the Rideau Canal. Excerpts follow:

My Lords express their concern that in addition to the very large sum sanctioned by the Board and by Parliament, as an excess, of the original estimate of Lieut. Col. By for these works they should be called upon to provide a further sum of £25,624 & that they should be left in doubt whether even that amount would be sufficient to cover the expenditure, Colonel Durnford having expressed some hesitation on the subject.

My Lords also requested to be informed when this additional estimate was received in this country, and whether the expenditure upon the Canal had exceeded the amount granted by Parliament for the purpose.

It appears from the explanation of the Master General and Board of Ordnance, that the papers which shew that this further sum of £25,624 will be required, were prepared by Col. By in the month of Jan'y 1831 . . .



When My Lords consider that so large an exceeding as £116,691 had been already sanctioned by Parliament, they cannot but regret that they should not have been apprized that a further expenditure would be required to complete the Works upon the Canal, because they would, if informed of that fact, have been able to have procured further information before they could be required to prepare an estimate for Parliament . . .

This information is the more necessary on account of Col. Durnford's observations it appearing from his statement to be by no means improbable that a still further sum may hereafter be applied for, & My Lords although they cannot avoid submitting an estimate for the Rideau Canal to Parliament will suspend any issue thereon when voted, until they shall be able to ascertain precisely the whole amount that can be required for the completion of the Works . . .

& it appears to My Lords to be the duty of the Respective Departments to take cognizance of the Votes for all Services conducted under their directions & to issue proper instructions upon them.

My Lords consider that it would not have come within the scope of their duty had they entered into any communication upon the subject with the Ordnance Officers in Canada, it not being the usage of the Board of Treasury on any occasion[sic] to give instructions or directions to any of the Ordnance Officers except through the Master General and Board.

It has been the constant desire of My Lords in communication with the several Departments of the State to prevent any possible exceeding of the Estimates voted by Parliament as was explained by their former Minutes, and if it should appear that any exceeding has taken place in Canada in this case, My Lords are of opinion that a very serious responsibility will have been incurred by the parties concerned . . .

Request the Board of Ordnance to lay before My Lords with as little delay as possible, an account of the total expenditure for this service during the year, 1831, and to the latest period to which it can be carried forward . . .

With this drawing of the line, the Treasury waited for the Ordnance reply which arrived in a few days, largely in the form of all By's very detailed estimates and explanations.

It was quickly decided that that was not good enough, and By would have to be recalled to give a most thorough accounting to a committee of the Treasury. The Board of Ordnance was informed accordingly on May 25, in a Minute that added:

My Lords will take into their future consideration these voluminous accounts but they cannot delay expressing their opinions to the Master General and Board of Ordnance on the conduct of Colonel By in carrying on this Work. It appears from that Officer's letter and from the Report of the Inspector General of Fortifications thereon that Colonel By had actually expended to the close of the Year, 1831, £715,408, being £22,742 more than had been granted for this Work by Parliament, and that without waiting for any Authority from this Country, he had gone on during the present year with a further expenditure entirely unsanctioned and which it is stated will probably

amount to £60,615, making an excess of £83,358 beyond the amount granted by Parliament.

The expenditure which was contemplated for this Canal when the Subject was immediately under the consideration of the Select Committee of the House of Commons in 1831, and the whole expenditure which any order has at any time been given by any competent Authority is £693,448, inclusive of £69,230 for Blockhouses and Works of Defence not sanctioned, and in order therefore to complete the Work, Colonel By has upon his own responsibility thought proper to expend not less than £82,576 . . .

The loneliness and indignation of By, as he waited at his home at Shernfold Park, Frant, just across the Sussex border from Royal Tunbridge Wells, Kent, in England, is evident from the large official and private correspondence that he spent his time in writing from late 1832 onwards. At the last moment even Bolton failed him: By waited for three weeks at Quebec for the detailed lists of expenditures to be sent on to him, and had eventually to settle for Colonel Nicolls' promise to send them on, but even in early 1833 he had not yet received them to use in preparing his defence. The Ordnance Board seemed uncertain whether By could or should be made a scapegoat, but of course, as has been seen throughout this narrative, he had been consistent since 1826, and even before he left England, in rejecting the unlikely and the impossible, and explaining every step and expenditure that was made. All this was a matter of record, and By dwelt on that fact constantly.

He was especially incensed at the "Imputations cast upon me by the Treasury Minute which recommended my recall from Canada." In a letter to a Major General Pilkington, of July 19, 1833, for instance, he particularly noticed that: "It has not been aleged [sic] against me that the Money expended was not required for the Service to which it was applied, or that it was wastefully applied. If such charges had been advanced I should have been prepared to refute them. My aleged [sic] offence is having expended a large sum of money without proper Authority."

His defence for the Treasury was very lengthy, but there was nothing apologetic or pleading about it, as By picked on the salient features to show that he had never exceeded his instructions despite the fact that the whole project gave him considerable leeway to interpret them, as it necessarily had to. He had built a Canal having 18 dams, 17 waste weirs, 46 locks, besides other improvements, at a cost generally recognized to be 15 per cent lower than any similar work in Canada. In doing so he had not changed any authorized procedure of expenditure, as he had not been limited to a "specific sum" apart from that established by the Kempt commission in 1828, which he was obliged after that year to interpret in his own way "for the good of the Service." So the documents showed. His definitive instructions had been those given him by the Duke of Wellington on June 28, 1826, and these he had quoted at the head of all vouchers and pay lists. He went back to the discussions with Sir James Carmichael Smyth and his suggestion to him that the Canal would cost five times the £169,000 suggested; and to those with General Mann, who had told him "it is impossible to decide what the Sum required will amount to, You will have to use your own judgement." Instructions received would be "your Authority for all Monies," and "on this," said By, "I have ever acted," his accounts having been transmitted every quarter to the Surveyor General's Office in the Tower of London. He quoted from instructions received from other Ordnance superiors, showing that he had not been limited to a specific expenditure, and showed that he had "furnished the Commissariat Department with the probable sum that would be required for the Rideau Service in each month [and] . . . year." As well, he had "furnished the Commanding Royal Engineer, Canada, with a statement shewing the number of Overseers, Master Artificers, and Clerks that would be required in the ensuing years." He had shown that "excavations for abutments and dams, waste weirs and locks" had been placed under contingent account and



not estimate because he had no "boring machines to ascertain the probable depth that would be required." In conclusion, he added:

I have no specific authority for making the various alterations that I found indispensably necessary to make as the work progressed, the construction of the Rideau Canal having been left entirely to my own judgement, but I beg to observe that on all these Alterations I consulted with the Commanding Royal Engineer Canada on the spot who kindly gave me his Advice on all occasions, and as I have expended no Money or made any Alterations but what were indispensably [sic] necessary to Complete the Water Communication between the Ottawa and Kingston to the best of my judgement, bearing in mind both durability and economy, I have quoted at the head of every Voucher and Pay List, as already stated, the Date of my Instructions as the Authority for executing the Work . . . I trust that the . . . successful Completion of the Great Work will convince Their Lordships that the Alterations have been judicious, and that it is admitted that the Rideau Canal has cost from 15 to 20 per cent less than any similar Work of the kind in North America.

The Treasury considered all the information that it could acquire during the spring and summer of 1833, and concluded that while By had performed his work well, the excess expenditure was regrettable. It was the activities of the Ordnance Board that they had been after; complete exoneration and praise for By was none of their concern. In July they noted that £1,004,265 had been voted for water communications in Canada from 1819 to 1833, of which £795,166 was for the Rideau Canal between 1826 and 1833.

To his old friend, Durnford, By wrote:

I was never ordered to stop the works until I was so unjustly recalled; when, thank God, they were all finished, and the Canal had been open to the Public for some months, or I should have been robbed of the honour of building the magnificent erection.

He retired once more to Shernfold Park, still not left at peace by the Ordnance department, who gleaned as much as they could of his exclusive knowledge of the Canal in correspondence in the short time that By remained alive. He died on February 1, 1836, at the age of 53, and his wife erected a plaque, with the family crest and inscription, "Give and Forgive," by the inside door of the Frant church, near to where he was buried, telling that his death had been:

*... After a long and painful illness,  
Brought on by his indefatigable zeal and devotion in the service  
Of his King and Country, in Upper Canada.*





Brewers Locks in the late nineteenth century. (Public Archives of Canada).



Entrance Locks, Ottawa, circa 1910. (Public Archives of Canada).



## Chapter 6

### THE AFTERMATH

Although the Canal was open, a good deal of finishing work and rethinking remained to be done. Bolton of course was on a far tighter rein than By had been, and was obliged to refer all matters of consequence to Colonel Nicolls. On October 10, 1832, for instance, he wrote to Nicolls that he thought the Canal should be closed on the 31st of the Month, as that had been By's recommendation, and he requested "instructions relative thereto, as that period is rapidly approaching and it might be considered advisable to give some public notice to that effect." Nicolls, on the 23rd, wrote to Colonel Glegg, asking the Governor's approval — "As this is a Military Communication, it appears His Lordship's authority would be desirable" — and recommending at the same time that approval also be given for reopening on May 1. This was done on October 24.

Bolton, in the meantime, had found it "indispensably necessary" to go to Brewers Upper Mills where the locks were "in a very precarious state," the effect of the Loughborough Lake level still being a problem. Nicolls was in no doubt about the necessity of "repairs, additions, & alterations" and, in the estimates which he sent on for the Governor on October 19, he recommended that in addition to the "Establishment" cost (which included the pay of 3 officers, 7 specialist civilians, 22 lockmasters, 33 permanent labourers and 31 temporary, plus 4 soldiers at 47 locks and 22 stations; and sundry routine tasks such as tarring and painting gates) of £7,247, that £5,418 be set aside, as By had previously suggested, for attending to them. He was sure, anyway, that this would be a minimum, because in "such a long line of waters, as the Rideau Navigation (150 miles) where their courses and depths have been so lately and materially altered," it was "impossible to foresee what farther expense it may be necessary to incur."

During the first months of Bolton's tenure, too, the blockhouses at the Narrows and the Isthmus — both built by William Tett, at a cost of £104 sterling each — and the bridge at Kingston Mills which Robert Drummond contracted for at £520 sterling — were completed.

The minor episodes at Brewers appeared to worry the Board in London more than they did the local engineers. In mid-May, 1833 the Master General of the Ordnance, who was then awaiting the result of the Treasury's deliberations, had a letter sent to By asking for "his consideration [of] the precautionary measures which his experience of the Canadian Canals might suggest" to "prevent the recurrence of accidents from the sudden overflow of the Water and the disruption of the artificial means by which it is raised."

By, who had had little enough time to explain such matters in detail before his hurried departure, replied from Frant on May 21 that the spring floods from 1830 to 1832 had caused very little damage as the lowering of the Canal level each November, and the practice of closing the waste weirs only when the floods came, had effectively checked the otherwise "terrifying" pressure. The dams and embankments would, however, require watching for some years to come — "it is well known that all moved earth will settle from time to time" — and he suggested that the two dredging machines, that were in the Engineer Store at Bytown, be fixed to the departmental scows and run through



the Canal to remove "drift sand or gravel" which, as "the very best material," could be used as fill for the dams and embankments. As well, he recommended the use of Philemon Wright's cement for the masonry during the springs and summers.

So far as the situation at Brewers went, he felt that the "self acting Gate" which he had set up there to turn the surplus water over Whitefish Falls had, in fact, "relieved that part of the Rideau Canal from Brewers Upper Mills to Kingston from all apprehension of danger from floods." Nevertheless, as an extra precaution it might be wise to reserve the borders of all lakes, creeks and rivers discharging into the Rideau for 40 feet above the high water mark, and dams on them should probably only be allowed at the discretion of the engineer in charge of the Canal.

Bolton's and Nicolls' experience of 1833 and the following year, however, showed that such precautions were not necessary. The trifling damage caused by the spring floods was repaired almost as soon as it was done, and mill dams on tributary streams had little effect on the Canal. Loughborough Lake was the only great uncertainty, and Bolton had decided that additional sluices at the Whitefish dam, and warnings to the lockmasters at Jones Falls and Brewers to open their sluices and waste weirs in the case of a sudden rise in Cranberry Lake, were all that seemed necessary for the time being on that score.

Repairs and alterations to improve the navigation had, of course, to go on constantly, in the years that followed. One of the major repairs was the reconstruction of the Long Island dam, which succumbed to the spring floods in 1836 and therefore closed the Canal; the then Major Bolton had it back in working order within two months.

Lumbermen, as has been seen, used the Rideau from the moment that it opened. During the first, 1832, season, some £1,650 sterling was collected from timber dues, chiefly from oak, 251,085 cubic feet, and pine, 239,854 cubic feet. Despite By's readjustments, there continued to be great unhappiness with the oak and pine rates, and in 1833 the lumbermen of Bathurst and Johnstown Districts petitioned Colborne for a further reduction. Colborne passed the information on to Bolton who replied that the lumbermen should count their blessings, as most of the timber could not have been got out without the Canal; besides, the Ordnance was entitled to some recompense for the damage that was being caused by passing timber through the locks. This the lumbermen hotly disputed when they again petitioned Colborne the following year. The Rideau River had been as navigable for timber in the spring "as many rivers now in use," and they believed that steamboats did the same damage as did the rafts. Then the matter reached the Upper Canada House of Assembly and, on March 5, 1834, the members agreed on an Address to the King to the effect that:

... the completion of the Rideau Canal has opened the means of conveyance to the shipping ports of Lower Canada for vast forests of White Oak and other timber, but... the Tolls charged on its passage through the Locks are found so burdensome that an Important Branch of the Timber Trade in this Province will inevitably suffer unless a Material Diminution is speedily made in the Amount of these Tolls. We therefore humbly request that Your Majesty may direct such Alteration... as may... Encourage Transport and bear some some Proportion with... Value at Quebec.

The British Government, having had, in its opinion, more than enough controversies recently with the Assembly agreed to adjust the rates on oak and pine according to a graduated scale that depended upon where timber had entered the Canal.

This satisfied the lumbermen for the time being and, as detailed in the *Cataragui Region Conservation Report* (1968) and the *Rideau Valley Conservation Report* (1969), the Canal was, in the years and decades that followed, a major artery for the passage of timber to Bytown and Quebec and sawn lumber to the United States. Although this function dwindled by the present century, it was not until the 1930s that it virtually ceased altogether.

Passenger and freight traffic were, naturally enough, the uses that most local people had for the Canal. During the first few years of operation the service was not regarded as especially efficient, boat operators frequently claiming the "insufficiency of the canal" as the reason. Others, like the editor of the *Bathurst Courier*, put it down to "the stupidity and inefficiency of the agents, managers and owners." On April 24, 1835, for instance, he mentioned that the *Margaret* was soon to enter the Canal, and that there would be connections at Kingston to "effectually prevent any delay of passengers:" although he had "been told that none who ever travelled that route will try it again," he trusted that "the travelling part of the community... will give this best, although much abused and misrepresented boon of our paternal government--another trial... rescuing their own and the canals sign credit from the foul mouths."

That, needless to say, was assured, as there was hardly a real alternative. In any event, the Canal during the summer of that year, 1835, was reported by the same newspaper as having "stood well... no serious delay or interruption having occurred."

The Canal fared better during the next decade, and frequently stayed open as late as the last week of November. In 1840, for example, it was not until November 24, that the *Beaver*, with six barges in tow, passed the Kingston Mills locks, having been a week in transit on the ice-covered Canal from Bytown. Others that year had to winter along the way. The *Bytown* and the *Mohawk*, with thirty to forty barges between them, were left at Kemptville and their crews returned by land to Prescott.

Despite numerous agents at Montreal, Kingston, Prescott and Bytown, and "capacious and comfortable barges well adapted for the conveyance of passengers and their luggage in addition to steamer accomodation," the Rideau Canal was not able to draw off the St. Lawrence traffic as had been hoped. It was a favoured route for immigrants, because of the cheaper rates, but persons of more ample means often preferred the steamers on the St. Lawrence, with stage-coach travel covering the short distances between the old portages.

Although the completion of the Junction Canal between Cardinal and Iroquois on the St. Lawrence in 1851 is generally considered to have opened that route all the way to Montreal, the effects on the Rideau Canal were apparent earlier. In July, 1847, the new St. Lawrence canal system was considered responsible for the "extremely limited" business that the Rideau had that summer. Any "attempt to regain the trade to our waters," it was feared, "will prove fruitless," which was regrettable as "the Rideau Canal must now either be kept up at an extravagant cost to the Imperial Government, or closed altogether." It



had always "proved a most unprofitable investment, never realizing sufficient from the tolls levied, to defray the actual expenditure," as the Bathurst Courier correctly reported at the time, and it appeared then that its use must be rapidly coming to an end. In the mid-1840s the Ordnance Department had offered the canal as an outright gift to the provincial government, but it had been declined. Apart from the St. Lawrence system, there was also the great railway mania that grew rapidly from the 1840s--"we may expect to see the whole line of country from Gaspe to Lake Huron occupied by Rail Road," one newspaper announced.

The Ordnance tried again in 1848, not wishing to have on its hands a major expense that served no purpose, but, after study by a committee of engineers, the province repeated its refusal to accept what promised soon to be a derelict canal.

However, further discussions, frequently heated (the Ordnance wished to keep the land alongside the Canal) resulted in the provincial government's accepting the Canal as a gift by Order-in-Council of October 1, 1853. The feeling, all in all, was then that it was "desirable that this canal should be kept open a little longer."

The shipping and forwarding companies, nonetheless, increased their operations, frequently using the Rideau as an alternate route to the St. Lawrence, and not a competitor. The newspapers of the 1850s were full of advertisements for shipping companies, many of them taking pride in announcing that they were successors to previously known operators. The Ottawa River and Rideau Canal Company, for example, ran the following advertisement widely in 1857.

#### FORWARDING

The Subscribers having purchased the Stock at one time belonging to the well known firm of Macpherson, Crane & Co., and subsequently to Robertson, Jones & Co., beg to notify the public of Ottawa and the country below, as well as those on the Rideau Canal, that they are prepared to forward with care, TO AND FROM MONTREAL and all PORTS on THE RIDEAU CANAL.

Their Stock consists of the Steamers

BYTOWN, CHARLOTTE, and JUNO,

And nine First-Class BARGES,

All of which have undergone extensive Repairs this Spring.

The Subscribers have secured the services of Mr. James Walker, long and favourably known as a Forwarder on this route, who will, as their Agent, attend to the business in Montreal.

By strict attention to their duties, and uniform Moderate Rates of Freight, they hope to obtain a liberal share of public patronage.

BROWNE & McKINNON,  
Ottawa.  
McDONALD & BROWNE,  
Montreal.





Steamers on the Canal near Kingston (top), Manotick (middle) and approaching Entrance Locks, Ottawa (bottom), in the 1880's. (Public Archives of Canada).



A competitor countered with:

Steamboat Notice!

The Steamer "PRINCE ALBERT", T. J. Jones, Master  
... will run as follows ...

The "Prince Albert" connects at Ottawa with the steamer John Stewart for Montreal. All freight from the locality of Perth downward to Montreal, and all freight upwards will be delivered at Port Elmsley or Oliver's Ferry, as directed, on Thursdays.

Extensive repairs to the Canal in the 1860s--many of the lock-gates were replaced--promised to give the Canal an even more promising future, and high railway rates on the Brockville and Ottawa Railway seemed to bear this out by driving commercial traffic back to the waterway. Moses Dickinson--the "*King of the Rideau*" as he was known--increased his number of "first-class steamers" in 1865, promising to get passengers to Ottawa or Kingston four days in the week during the summer. The route, it was admitted, was not as fast as the railway, but it was "a very pleasant one." As the railways proved able to maintain their supremacy this proved to be the selling-point for the Rideau steamers.

"There are few routes in Canada," read an editorial in the *Perth Courier* of August 24, 1866, "that can be better enjoyed by the tourist than a jaunt from Kingston to Ottawa or vice-versa, the scenery being very fine, and the boats equal to any." Anticipating the drawing attractions of a later day, it continued on about the "romantic character of the scenery along its banks, the beauty and grandeur of its falls and rapids, the almost endless succession of lakes and rivers of which it is the outlet, the solid construction and massive appearance of its numerous locks and dams."

In a later edition, the same newspaper regretted even more strongly that "the iron horse" had caused passenger traffic on the *City of Ottawa*, and others such as the *Rideau King* and the *Rideau Queen*, to decline to the point where they were little more than what later became known as excursion boats.

There were, however, new uses for the Rideau from the late 1860s. The small cheese factories (see the *Cataraqui Region Conservation Report* and the *Rideau Valley Conservation Report*) that appeared from that time, sent a large part of their production down the Canal, and this trade continued until perhaps a decade after the First World War. Even the railway had a use for the Rideau; for instance, when Smiths Falls became a major railway junction it was found cheaper to ship coal for engines by barges on the Canal from Kingston, rather than load there on to trains themselves. This practice lasted for about half a century, but ceased when it became more economical to ship American coal across the St. Lawrence on the train ferries prior to 1920.

Government attempted to bolster the use of canals for freight from the 1890s. By the post-World-War-One period, however, it had become apparent that railways and roads together provided the best means of transportation for all but a few purposes. With the great depression of the 1930s, and the searching for savings wherever they could be found, a proposal was made in the federal Parliament that the Rideau Canal be closed entirely. Such a scheme, it was quickly realized, would produce more hazards than it would benefits, not only from decaying locks, dams and embankments, but also from the water reverting again to its natural level.



Soon afterwards the number of pleasure craft on the Canal increased, heralding the recreational boom of the past quarter century that has so increased the traffic of boats both large and small that the old locks are considered no longer equal to the task. Those at Newboro have been converted to electric operation, and plans for similar conversions have been made and subsequently discussed.

## REFERENCE NOTE

The material for this paper has been taken almost entirely from archival sources, principally from the Military "C" Series, and British War Office Records in the Public Archives.

As these are of interest only to the specialist, they are not listed in detail.

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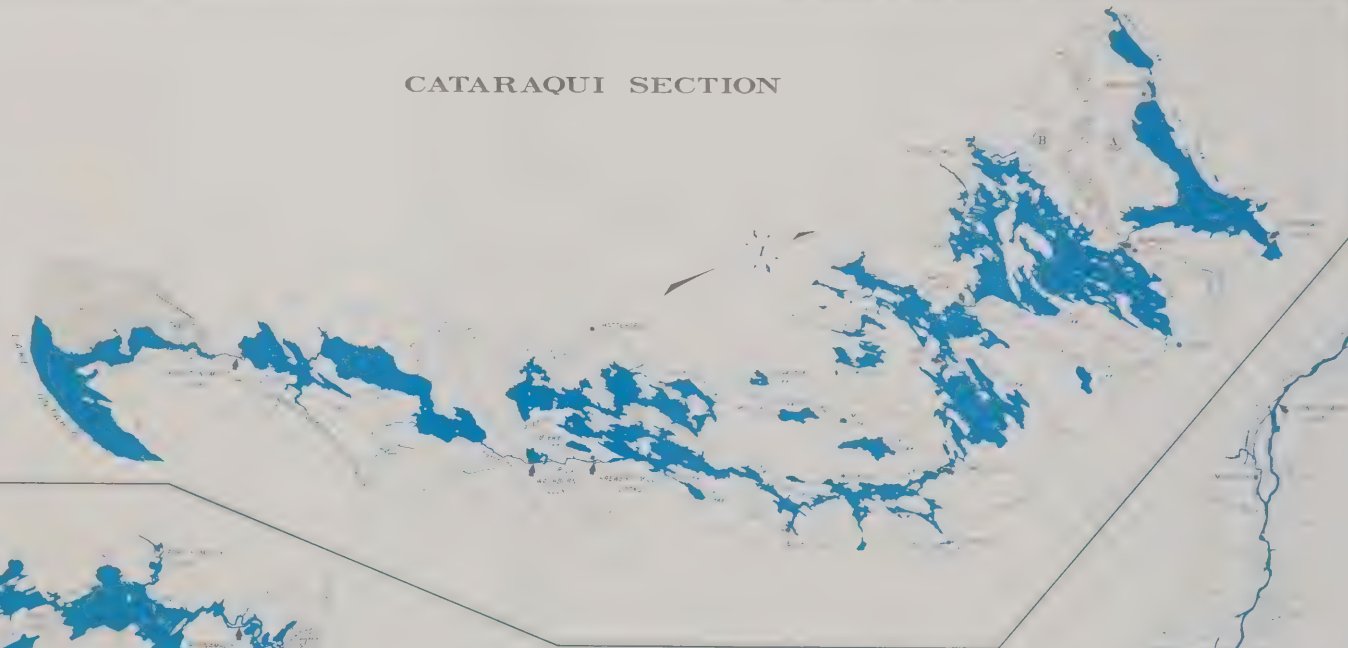


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